SEP 8 1986 COMPLETED Y4. P96/10: S. hrg. 99-739

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S. Hrg. 99-739

COLORADO RIVER FLOODWAY PROTECTION ACT

MF ORIGINAL

HEARING

BEFORE THE

SUBCOMMITTEE ON WATER RESOURCES

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

NINETY-NINTH CONGRESS

SECOND SESSION

ON

S. 1696

A BILL TO ESTABLISH A FEDERALLY DECLARED FLOODWAY FOR THE COLORADO RIVER BELOW DAVIS DAM

APRIL 22, 1986

Printed for the use of the Committee on Environment and Public Works

U.S. GOVERNMENT PRINTING OFFICE
60-913 O WASHINGTON : 1986

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

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COLORADO RIVER FLOODWAY PROTECTION ACT

TUESDAY, APRIL 22, 1986

U.S. Senate,
Committee on Environment and Public Works,
Subcommittee on Water Resources,
Washington, DC.

The subcommittee met at 2:08 p.m., pursuant to notice, in room 406, Dirksen Senate Office Building, Hon. James Abdnor (chairman of the subcommittee) presiding.

Present: Senators Abdnor, Stafford, and Simpson.

OPENING STATEMENT OF HON. ROBERT T. STAFFORD, U.S. SENATOR FROM THE STATE OF VERMONT

Senator **Stafford**. The meeting will please come to order. I had hoped this afternoon that we would be honored by the presence of the distinguished chairman of the Committee on Armed Services, Senator Goldwater, but that was not possible, so we are very glad that Senator DeConcini is here.

I will comment that in connection with this hearing, the concept of declaring a Colorado River floodway along the lower Colorado seems quite reasonable and thoughtful. I do not see why the Federal Government should continue to provide subsidies such as flood insurance to persons who construct buildings within the 100-year flood plain, usually inside levees that were built specifically to contain flood flows.

This bill, as I understand it, has no adverse impact on the development that now exists. The impact is on future development, which seems prudent. So I look forward to the testimony of Senator DeConcini and to the panels which follow. A little bit later on, I will turn the conduct of the meeting over to the very able and distinguished Senator from South Dakota, Senator Abdnor, who has chaired it with distinction through the last 5 years.

At this point, I will place Senator Abdnor's statement in the record.

[The statement referred to follows:]

Opening Statement of Hon. James Abdnor, U.S. Senator from the State of South Dakota

We are very pleased to be here today to receive testimony on S. 1696, the Colorado River Floodway Protection Act and Amendment No. 1643 to that bill.

I would like to welcome all of our witnesses who have traveled so far to be with us today. In addition, I would especially like to welcome Senator DeConcini. This is a difficult issue and I know he has given it a lot of thought. He and Senator Goldwater deserve a great deal of credit for being so dedicated to the State of Arizona.

The 1982 and 1983 flooding on the Colorado River clearly demonstrated that something must be done about the continued development of the floodplain below Davis Dam. The large property loss that occurred then and the possibility of even greater losses in the future makes this a problem that cannot be ignored.

A solution to this problem is made all the more important by the fact that the operation of one of the West's primary resources: the Colorado River, is involved.

The two proposals before us today represent two very different approaches to this problem and we look forward to hearing the witnesses' comments on these bills.

I can assure my colleagues and others who are here today, that this subcommittee will work to report out legislation that is both good policy and that is fair to all concerned.

Senator **STAFFORD**. For the moment, Senator DeConcini, knowing you may disagree with the observation I just made, I would be very pleased to recognize your presence, and the committee would be very pleased to hear from you.

Senator **DECONCINI**. Mr. Chairman, thank you very much. I do have Senator Barry Goldwater's statement and ask that it appear in the record first, for many reasons. He is one of the authors of the bill and my senior colleague. And besides that, it is a little different than my statement, and I think it would be appropriate if it would appear first.

Senator **STAFFORD**. Thank you, Senator. Without objection, we will place it in the record before your own statement.

[The statement of Senator Goldwater follows:]

STATEMENT BY SENATOR BARRY GOLDWATER

ON THE

COLORADO RIVER FLOODWAY PROTECTION ACT, S. 1696

FOR THE HEARING

BEFORE THE WATER RESOURCES SUBCOMMITTEE

OF THE

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

Mr. Chairman, let me take the opportunity to express my appreciation to you, to Senator Stafford and to the other Members of the Water Resources Subcommittee for taking the time to hold this hearing during these busy days in the United States Senate.

I know that you have many, many other important items to deal with, here in the Senate and in your home states. Speaking on behalf of the seven Colorado River Basin States, Arizona, New Mexico, Wyoming, Colorado, Utah, California and Nevada; the Colorado River Floodway Protection Act, S. 1696, is an important piece of legislation for our states. Senators Simpson, Cranston, Hecht, Wilson, Laxalt, Garn, Wallop and Hatch are cosponsors of this measure.

The Colorado River is the lifeblood for my state of Arizona as it is to a greater or lesser extent for the six other basin states. Over 18 million people from Denver, Colorado to San Diego, California use the waters from this majestic river to literally make the deserts bloom. One and a half million acres of prime agricultural land are irrigated by it, and it supplies the water needs in homes, in businesses and in industries for millions of our people who live in major cities such as Phoenix and San Diego and small towns from Vernal, Utah to Yuma, Arizona. The river also serves as a major source of energy from the development of hydropower. The recreational benefits from the lakes and the river itself, and the fish and wildlife enhancement are further benefits derived from this historic body of water.

There is already more demand for the waters from this river than can be possibly be supplied in normal years. In addition, there is an obligation by the United States to supply Mexico with 1,500,000 acre feet of water each year under the terms of the Mexican Water Treaty of 1944.

This is not to minimize the important flood control benefits which resulted from the construction of the major dams on the river, such as Flaming Gorge, Glen Canyon, Hoover, Davis and Parker Dams. The Goldwater family first settled in La Paz, Arizona and built a store next to the Colorado River which was destroyed during one of the many devastating floods which occurred prior to the construction of our present reservoir system. The Goldwater family learned the hard way about building in the river flood plain. The Colorado River has flooded for millions of years and will continue to do so. In the natural scheme of things there will be occasional years of heavy rain and heavy snow falls which will result in higher than normal water releases from the dams on the river.

In 1983 and 84, the runoff to the river was twice the normal amount and because Lake Powell was full, large amounts of water had to be released, particularly in 1983. This resulted in severe flooding to communities, Indian reservations and government facilities along the river. In addition, there was a large loss of revenue from recreational business due to the severe flooding.

My distinguished friend and colleague from Arizona, Congressman Morris Udall, Chairman of the House Interior Committee held oversight hearings in Yuma, Arizona and Needles, California in September of 1983 on the 83 Colorado River floods to investigate the causes and consequences of this flooding.

In order to control development in the flood plain and to make certain that the Colorado River is managed in a way that takes into account all of its multiple uses, I introduced the Colorado River Floodway Protection Act which is a companion bill to Congressman Cheney's bill, HR 1246 which has passed the House of Representatives.

The purpose of the bill is to establish a federal floodway of at least 40,000 cubic feet per second from below Davis Dam to the US-Mexican border, a distance of 250 miles.

After receiving maps of the proposed floodway from the Colorado River Floodway Task Force and completing a study of tributary in flows to the river, the bill requires the Secretary of Interior to define the boundaries of the Colorado River Floodway.

After the floodway is established, there will no longer be new federal assistance for properties in the floodway except for certain exempted activities such as flood control, military security, transportation, emergency assistance, fish and wildlife enhancement, and recreational developments. It is my understanding that agricultural activities which are important to the Indian Tribes along the river, particularly the Colorado River Indian Tribes, will be allowed to continue in the floodway.

Also, I support the House Interior Committee recommendations that the Secretary of Interior should not assume that flood inflows from the different tributaries occur at the same time when the Secretary establishes the one in one hundred year river flow. In the Southwest deserts thunderstorms are, for the most part, local in nature and not all tributaries are flooded at the same time.

Mr. Chairman, in conclusion, this bill has the overwhelming support of all seven Colorado River Basin states' governors, and the water resources directors of these states. The Colorado River is of major importance to all of our states, particularly my state of Arizona which now has place the canal and pumping plants to transport water from the Colorado River to Phoenix and in the future to Tucson. I urge the Subcommittee to favorably report this bill.

STATEMENT OF HON. DENNIS DeCONCINI, U.S. SENATOR FROM THE STATE OF ARIZONA

Senator DECONCINI. Mr. Chairman, I appreciate the opportunity to testify here. And I apologize for holding you up. I did not realize Senator Goldwater was not going to be here.

I know it is always difficult trying to find time in a busy schedule for a committee of this size to hold hearings on legislation that affects just one region of the country, and I want you to know, Mr. Chairman, that I truly appreciate your willingness to listen to myself and Senator Goldwater and other individuals from Arizona who will be testifying.

The bill being considered by the committee today is one that has been sponsored by my friend and colleague Senator Goldwater. While I rarely find myself in disagreement with the views of my distinguished senior colleague, I regret to say that this is one of those rare occasions. My opposition to the legislation introduced, which is virtually identical to legislation which was sponsored by Congressman Cheney and others in the House, H.R. 1246, would establish a federally recognized floodway for the Colorado River.

This legislation also prohibits the issue of Federal leases, the expenditure of Federal funds for development within the floodway, and establishes a task force to make recommendations of the development and management of the floodway.

While I do not disagree with the principles laid out in the so-called Cheney legislation, I do disagree with the process by which the Cheney bill proposes to establish the permanent future management of the Colorado River. As you are no doubt aware, Mr. Chairman, I have sponsored separate legislation on this matter. An amendment I have proposed in the nature of a substitute to S. 1696 has been referred to this committee.

Let me take a minute to explain to the committee some historic background on the subject of the federally recognized floodway for the Colorado River. The Colorado River floodway legislation was originally sponsored in 1984 in response to the floods of 1983, which were created along the river as a result of tremendous snowmelt in the upper basin.

Having to act quickly to respond to the increased water flow, the Bureau of Reclamation altered the operation of its dams and released large quantities of water from behind the structures. As a result, flows in some areas along the river were much greater than ever anticipated. Flooding was created and, consequently, substantial damage to public and private properties was very evident.

As a result of the flood, field hearings were held in Arizona, and the General Accounting Office conducted an investigation of the Bureau's handling of the water release from behind its dams. The general conclusion was the Bureau of Reclamation did not act negligently. Since that time however, all individuals who have an interest in the operation of the Bureau's dams on the Colorado have been sensitive to the need for a clear policy concerning the operation of these structures. The legislation before this committee attempts to do just that.

I agree that the time has come for all parties to work together for a clear and decisive policy. The series of multiple purpose dams on the Colorado provide a variety of benefits from power generation, to flood control, and recreation. While the normal operation criteria established by the Bureau of Reclamation generally accommodates all these needs and benefits, occasionally, as in the experience in 1983, unforeseen conditions present themselves necessitating immediate action without time to eliminate all the undesirable consequences.

While the situation that presented itself in 1983 is a rare occurrence, it tells me that all Federal, State, local, and private interests along the river need to develop a policy which is consistent with the wise management of water, power, flood control, and other benefits. This is precisely my objection to the legislation sponsored by Senator Goldwater and Congressman Cheney.

S. 1696 establishes a task force to make recommendations to the Secretary of the Interior on the future management. However, by establishing the parameters of the floodway to accommodate flows to sustain a one in 100-year flood, or a flow of 40,000 cubic feet per second, the bill in all reality greatly limits the ability of the task force to determine what the boundaries of the floodway should be.

Further, under the Cheney and Goldwater legislation, the task force has no responsibility for reviewing the boundaries for the floodway or making recommendations on the decision. To go even further, future expenditures within the floodway also will not be subject to the review or recommendation of the task force.

Now, Mr. Chairman, this is the very important distinction between my amendment and the legislation before the committee. S. 1696 prohibits the expenditure of Federal funds for development within the floodway.

The Colorado River Indian Tribe, which you will hear from today, has some grave concerns about this provision. As you know, Indian tribes receive Federal funds for many different purposes. By limiting expenditures for development within the floodway, are we in fact endorsing a policy to end Federal subsidies to the tribe for programs which may have nothing to do with the floodway? The answer to this question is not clear in my own mind because of the way in which the provision is worded in the legislation. This example speaks again for the need to ensure that all parties are represented on the task force, which has some clear responsibility to develop something for the future of the floodway.

The operation of dams on the Colorado River provides substantial benefits to both upper and lower basin States. The Arizona and California border may be more directly affected on a daily basis by the operation of these dams. I believe we ought to enact legislation that sets up a task force to determine what the future and proper management of the river should be. We should include in the legislation what the parameters of the study should be. The task force should attempt to determine what compatible activities can coexist.

The amendment I have sponsored creates a Colorado River Floodway Task Force made up of representatives of all States from the upper and lower basin; all Federal agencies which may have an interest in the future management of the Colorado River; representatives of law enforcement; representatives of all communities; Indian tribes; all entities which may be affected by the future management.

The task force is charged with reviewing past operations of the dams, examining damage from the 1983 flood, making recommendations to the President and Congress on the future size of the floodway, construction, Federal expenditures, need for additional legislation, and on and on. My amendment also allows the task force to review economic losses resulting from the 1983 flood.

Unlike S. 1696, it does not make a distinction between economic loss and extraordinary hardship. I do not believe that we should put ourselves in a position of determining whether one person's loss is greater than another. Let the task force review and make recommendations—and I stress, recommendations—on these issues. By bringing together all entities which may have an interest in the management of the river, the task force will assure that hasty decisions are not made which would create yet unforeseen problems for those who may be directly affected.

Mr. Chairman, I understand that the Bureau of Reclamation and others would like an immediate management plan for the Colorado floodway. I am not an engineer. I cannot stand here before you today and comment on whether or not the river should be sized to accommodate a flow of 30,000 cubic feet per second or 60,000 per second for a 1-in-100-year flood.

I can tell you, however, that the representatives to the task force I propose in my legislation can make those decisions keeping in mind what the historic flows have been and making statistical projections on what the future flows will be.

Development in both Arizona and California has taken place over the years along the banks of the river. Maybe we should limit future development. I am sure there are going to be many individuals who feel there should be no restrictions on future growth along those banks. But at the very least, we should give all who are affected by this decision an opportunity to be heard on the potential consequences of a floodway before we decide what the size of that floodway should be.

I am told that the flows below Davis Dam, for instance, today are 24,000 cubic feet per second. I see no need to make a decision today that the floodway should accommodate 40,000 cubic feet from below Davis Dam. The Bureau has operating criteria. They have been more careful in their operation of those dams since the 1983 flood.

Before we legislate a permanent flow level for a floodway, let us give those citizens along the river the benefit of participating in a process to determine the future management of that river. In S. 1696 it is still not clear to me whether or not the Secretary can recommend management for the river which is in direct contradiction to what the task force may propose.

As I stated earlier, Mr. Chairman, I do not disagree with the overall goals of S. 1696. What I cannot agree with is the way in which we attempt to achieve that goal as outlined in the legislation before this committee. There are many communities along the Colorado River which feel as I do. You will be hearing from the Mohave County Board of Supervisors and the Colorado River Indian Tribe today. Other communities will be submitting statements for the record in support of the task force legislation.

While the so-called Cheney legislation has greatly improved since it was originally introduced, I must admit, I continue to believe we should adopt legislation which establishes a task force without outlining just what the size of that floodway should be at this time. Once the recommendations are in, we will be in a better position to determine the size and the future of the management.

There are too many unknowns about the effects of S. 1696. I think the Bureau realizes the problems that were caused in the 1983 flood and are prepared to manage that water while this substitute, if it passed, has an opportunity to have the task force meet and listen to all and to report back to us.

Mr. Chairman, I apologize for the length of that statement. I looked at it this morning and over the weekend and we did reduce it. But I felt this was a very important subject for my part of the country that I had to put this explanation in. I do thank the chairman and Senator Abdnor for your indulgence.

Senator STAFFORD. Thank you very much, Senator DeConcini. I can assure you, the subcommittee and the full committee will look over what you have suggested and give it due consideration in our deliberations. I have no questions.

Do you, Senator Abdnor?

Senator ABDNOR. No. I am sorry I was late. I would like to submit an opening statement, without objection.

Senator STAFFORD. I have already taken the liberty to place that statement immediately following my own very brief remarks, Senator.

Senator ABDNOR. I also would like to tell Senator DeConcini, we will certainly look over his statement very carefully.

Senator DECONCINI. Thank you, Mr. Chairman, Senator Abdnor. I appreciate your careful consideration. This is vitally important to us. And I know you have got many things on your platter here, but I cannot thank you enough for taking this subject under your consideration.

Senator ABDNOR. Thank you.

Senator STAFFORD. Senator, you are welcome to stay with us or leave.

Senator DECONCINI. Thank you, Mr. Chairman.

Senator STAFFORD. We understand you probably have pressing things elsewhere.

Senator DECONCINI. I think I will stay for just a few minutes, sir. Thank you, Mr. Chairman.

Senator STAFFORD. Please join us up here on the podium, if you wish.

Senator DECONCINI. Thank you.

Senator STAFFORD. The first panel will consist of Mr. C. Dale Duvall, Commissioner, Bureau of Reclamation; Mr. Frank H. Thomas, Assistant Administrator, Federal Insurance Administration and FEMA; and Col. Edward A. Starbird, Deputy Director of Civil Works, Pacific Division, Corps of Engineers.

Gentlemen, if you would come to the witness table.

It would be my intention to ask you to proceed in the order in which we announced you, which means, Mr. Duvall, you would be first, followed by Mr. Thomas, and finally, Colonel Starbird.

Since I have a pressing engagement elsewhere concerning the Superfund Program, I am going to have to leave this hearing and turn it over to the very able chairman of the subcommittee, who has worked so well in running this subcommittee over the last 5 years, Senator Abdnor. I do have a few questions for our witnesses that I would submit to in writing, if that might be agreeable, for a response at your earliest convenience.

Would that be agreeable, gentlemen?

Mr. Duvall. Yes.

Mr. Thomas. Yes.

Colonel Starbird. Yes, sir.

Senator Stafford. Thank you. At this point, I will turn the meeting over, Senator Abdnor, to you.

Senator Abdnor. Thank you, Chairman Stafford. As the chairman said, you may proceed in the order called.

STATEMENT OF C. DALE DUVALL, COMMISSIONER, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

Mr. Duvall. Thank you, Mr. Chairman. I appreciate the opportunity to appear here today to present the views of the Department of the Interior on Senate bill 1696. The proposed legislation and the Department's entire position on this legislation is contained in a statement that I have submitted. I will summarize as briefly as I can, for the benefit of you, Mr. Chairman, and for the other witnesses who are about to appear, the basis of that statement.

Senator Abdnor. Fine. We will assure you, your entire statement will be made a part of the record.

Mr. Duvall. Thank you, I appreciate that.

The proposed legislation would designate a federally declared floodway on the Colorado River between Davis Dam and Mexico; preclude most forms of Federal assistance to new development within the floodway; and establish a task force to assist in the determination of the floodway boundaries.

The Department of Interior supports enactment, and supports what we understand to be the technical and clarifying amendments proposed by the Federal Emergency Management Agency, and does not support any amendment to authorize additional compensation to persons suffering economic losses from the 1983 flood.

In the early years of this century, major floods regularly occurred on the Colorado. Control of flooding was one of the major purposes for the construction of Hoover Dam. Projects constructed on the river and its tributaries have given us the capability to effectively regulate the river and significantly reduce peak flood flows.

This proposed legislation is modeled after the Coastal Barrier Resources Act, wherein Congress found that coastal barriers contained important resources that were being irretrievably lost to development; that the barriers contained areas intrinsically unsuited to development; and that actions of the Federal Government had subsidized and encouraged this unsuitable development. In that legislation, Congress withdrew Federal development assistance from such areas. In many ways, the situation on the Colorado River is analogous to that of the coastal barriers.

Encroachment on the floodway has become a growing problem. The high flows of 1983, 1984, and 1985 indicate that we must ensure that the floodway is available to handle normal flow levels.

The floodway is designed to accommodate flows that may be anticipated in the future. Real estate development therein will reduce its capacity to handle high flows. If this occurs, demands for increasing flood control space reserved in the reservoirs can be anticipated and could entail a major loss in existing water and power supplies to the detriment of millions of people in the region.

Although the total water supply has been allocated, some facilities have not yet been constructed. Storage facilities are filled and frequent releases of excess water may be necessary. This can be expected to continue until the allocated water is fully used or a period of deficit water supply occurs.

Development occurred largely because of unrealistic expectations concerning the probability of high flows. After completion of Hoover Dam in 1935, and during the filling of Lake Powell, which occurred between 1963 and 1980, generalized flooding was largely unknown on the Colorado. People became complacent.

After Lake Powell was filled, many were slow to grasp the significance of the new situation. The near full reservoir conditions were further overshadowed by the lowest water year on record in 1977, and the third lowest year in 1981. Therefore, in spite of the Bureau of Reclamation's efforts to provide information, development continued.

In 1976, the Bureau published a report, Riverflows Between Davis Dam and Yuma, AZ, forecasting conditions and likely impacts. That report said:

> A return to more normal riverflow conditions with high rate prospect is in prospect. These sustained high rate flows will cause water levels from 4 to 10 feet higher than the typical high-water levels of the past 13 years. Persons planning future construction should be aware that higher water levels are probable. Those who have existing structures and facilities which would be damaged by the higher flows should take precautionary measures.

That was in 1976.

A series of meetings was held in communities along the river in conjunction with the publication of that report. Unfortunately, drought conditions prevailed and it was difficult to develop interest in potential flood problems and development within the floodway continued.

In 1983 significant damage to private structures occurred. With the exception of the Topock Marsh and damage due to ground water seepage in several locations, the damage was confined to areas within the floodway.

The proposed legislation does not prohibit development within the floodway. It does eliminate the paradox of federally subsidized development that threatens the integrity of congressionally authorized projects. Nothing in the legislation prevents private entities from financing development, provided they are willing to assume the risk. By requiring that information be furnished on floodway location and boundaries, the legislation provides for an informed choice and allows the market to operate efficiently.

The delineation of a floodway and the development of guidelines will provide State and local governments much needed tools for planning and zoning.

I reemphasize that the Department does not support amendment of this bill to provide additional compensation for losses from 1983 flooding above that which may be provided by current law.

In summary, the Department of Interior feels that the legislation establishes a reasonable balance between the interests of those who depend on the river for a consistent supply of water and power, and those who live along the river.

Thank you, Mr. Chairman.

Senator ABDNOR. Thank you, Commissioner. Mr. Thomas is next. I think we will have all three statements before we go to questions.

STATEMENT OF FRANK H. THOMAS, ASSISTANT ADMINISTRATOR, FEDERAL INSURANCE ADMINISTRATION, FEDERAL EMERGENCY MANAGEMENT AGENCY

Mr. THOMAS. Mr. Chairman, I am Frank Thomas, Assistant Administrator, Federal Insurance Administration in FEMA. I appreciate the opportunity to appear before you today and to present the views of the Federal Emergency Management Agency with regard to S. 1696, a bill to establish a federally declared floodway for the Colorado River below Davis Dam.

I have with me my colleague, Dr. Brian Mrazek, Assistant Administrator for Risk Assessment, who has responsibility for our studies program and our mapping program.

The purpose of the bill is stated in section 2(b) as being to "provide benefits to river users and to minimize the loss of human life, protect health and safety, and minimize damage to property and natural resources by restricting future Federal expenditures and financial assistance, except public health funds, which have the effect of encouraging development within the Colorado River floodway." We believe that with some technical amendments the bill could achieve these stated purposes.

FEMA has long supported a Federal policy that discourages development within flood-prone areas. The National Flood Insurance Program certainly carries this out. We would like to clarify the NFIP role in the portion of the Colorado River affected by the bill.

The National Flood Insurance Program was enacted to provide a more effective means of addressing the Nation's flooding problems because the traditional approach of flood control, structural works and disaster relief, while serving some purpose, has not had the effect of discouraging unsafe development in flood-prone areas. The NFIP is based on a mutual agreement with communities that have been identified as flood prone. FEMA provides community-wide flood insurance and flood hazard maps, provided that the community adopts and enforces adequate floodplain management regulations that meet the minimum requirements of the National Flood Insurance Program.

There are 12 participating communities in the area that could be affected by the bill. And of these, 10 are "regular program" communities. This means that flood insurance for new construction and substantial improvements in those communities is and will continue to be provided at self-supporting, nonsubsidized rates. Thus, there is no significant Federal subsidy for insurance on new construction in those areas.

There has been some discussion that the provision of Federal flood insurance has the effect of encouraging development of flood-prone areas. There are many factors that promote development. Among them are community infrastructure such as roads, water, sewer, and utilities; the availability of mortgage and investment capital; construction costs; the state of the economy; and regional and local economic conditions. We believe that development would take place under the influence of such factors as those just listed whether flood insurance is available or not.

Even those who argue that flood insurance encourages development usually rely on the subsidized aspect of the National Flood Insurance Program and refer primarily to coastal areas. The risks that would be denied flood insurance under this bill will be predominantly nonsubsidized risks.

Furthermore, in more riverine situations, the National Flood Insurance Program has the opposite effect and discourages development by first, identifying and mapping flood hazard areas. Second, ensuring local regulation, and third, encouraging State regulation. Finally, moving the long-term economic costs of floodplain occupancy up front through the additional construction costs associated with protecting new building from flood damage in order to qualify for insurance.

Several technical provisions of the proposed bill need clarification if FEMA is to implement the restrictions on the availability of flood insurance. These are attached to my testimony.

In addition, FEMA shares the concern of the Corps of Engineers and the Department of the Interior regarding compensation of victims of the 1983 Colorado River flood over and above that provided to victims of similar flooding elsewhere in the Nation.

In conclusion, FEMA supports the stated purposes of this bill. We believe the National Flood Insurance Program and FEMA has significant roles in working to minimize future development and reducing Federal expenditures in flood-prone areas. We are prepared to work with the committee and other appropriate parties to ensure that a workable and effective measure is implemented.

Thank you.

TECHNICAL ISSUES RAISED BY S. 1696

1. Timetable for denial of insurance. The Bill's schedule and procedures for denying insurance are unworkable.

   (a) FEMA needs at least eighteen months lead time after obtaining accurate maps to deny insurance. The Floodway boundaries must be transferred to existing National Flood Insurance Program (NFIP) maps and those maps reprinted and redistributed. Administration of the NFIP involves not just Agency personnel but also the private contractor that manages the data base, almost 200 insurance companies participating in the Write-Your-Own program, and an additional number of local insurance agents. All these people must be notified, instructions for them developed and issued, and new maps and informational material distributed.

   (b) Temporary boundaries would require that FEMA institute new procedures and issue maps twice and would contribute to confusion after the final boundaries are established.

Proposed amendment:

Delete from Section 12.(a) of the Bill, new Section 1322(b) of the National Flood Insurance Act and insert in lieu thereof:

(b) No new flood insurance coverage may be provided under this title for new construction or for substantial improvements of existing structures on or after a date eighteen months after the Colorado River Floodway maps are filed with the Committees in accord with Section 5 of the Colorado River Floodway Protection Act. New construction includes all structures that are not insurable prior to that date.

Note: A building is insurable once it is walled and roofed.

Delete from Section 12.(a) of the Bill, new Section 1322(c) of the National Flood Insurance Act.

Delete from Section 12.(a) of the Bill, new Section 1322(a) of the National Flood Insurance Act the words "six months" and insert in lieu thereof the words "eighteen months."

2. Eligibility for insurance coverage and provision of disaster assistance. FEMA has been delegated authority to administer the NFIP and the Disaster Relief Act of 1974. The only components of infrastructure insurable under the NFIP are walled and roofed buildings.

Proposed amendments:

Delete the word "Secretary" from Section 7.(e)(5) and insert in lieu thereof the words "Director of the Federal Emergency Management Agency."

Delete the word "or infrastructures" from Section 7.(e)(5)

3. Appropriations. The Bill will require expensive and unanticipated revisions in FEMA's flood maps. The combined cartographic, printing and distribution costs would be about $385,000.

Proposed amendment:

In Section 15, insert after the word "Act," the words "and the Federal Emergency Management Agency to discharge its duties under Section 12 of the Act."

Senator **Abdnor**. Thank you, Mr. Thomas. That leaves Colonel Starbird.

Colonel **Starbird**. Yes, sir.

Senator **Abdnor**. Go ahead.

STATEMENT OF COL. EDWARD A. STARBIRD, DEPUTY DIRECTOR OF CIVIL WORKS, PACIFIC DIVISION, CORPS OF ENGINEERS

Colonel **Starbird**. Thank you, Mr. Chairman. I appreciate the opportunity to be here to testify and will submit the complete testimony for the record. I would like to summarize——

Senator **Abdnor**. Colonel, could I stop you for just 1 second?

I am pleased to say that Senator Simpson has arrived. He has an interest in this project, and I know he is a busy fellow, so I am going to call on him for just a second, if you do not mind? I apologize for the interruption.

OPENING STATEMENT OF HON. ALAN K. SIMPSON, U.S. SENATOR FROM THE STATE OF WYOMING

Senator **Simpson**. I do appreciate that very much. Thank you, Mr. Chairman. I just want to thank you for your willingness to take this on and proceed with it. It is very helpful to us. I think it is very important and I wanted to share that with you, and I thank you for it. I have a brief statement and I will insert it into the record, if I may, in full. (See p. 32.)

Senator **Abdnor**. Without objection.

Senator **Simpson**. And just say that I think this is a very important piece of legislation. It affects the entire lower Colorado River basin in the seven Colorado River Basin States. The headwaters of the Green River, a major tributary of the Colorado are found in the western portion of my State of Wyoming.

The legislation focuses on the Colorado River and its unusually high river flows. Those concerns, I think, are real as the river flows 250 miles to the south and the border. And since the 1983—September of 1983 flooding—concerns were very much more focused. They witnessed an increased movement of homedwellers and businesses into the floodway of the Colorado River. This legislation, I think, recognizes the natural fact that that river will flood, despite the control provided by existing dams along stretches of the Colorado.

Those risks are high for personal injury and property damage to occur for individuals who choose to develop property in that area. So I think it is very important to withdraw various forms of Federal assistance to new development within that area along the Colorado which receive the periodic flooding.

This bill would not otherwise alter that, Mr. Chairman, alter the existing management. And by enacting this, and you are giving it the priority you do, will simply establish a course of conduct that says, if an individual wants to place a business or residence within the floodway they can sure go do that at their own risk. They should not expect that risk to be insured by the Federal Government. There is good precedent for it. The barrier islands legislation, which I supported is an example.

The answer—and I guess this is what I would conclude with, Mr. Chairman—is not in requiring more flood control capacity behind existing dams, that would be a mistake. Wyoming and all the seven Colorado River Basin States have an interest in protecting the existing conservation storage along the Colorado River. That storage has come about with some pretty heavy investments.

And to increase the flood control capacity behind the dams and along the river is going to necessarily require a decrease in conservation storage, and that capacity would decline. That would, in turn, require expensive new investments in regulatory and conservation storage projects in order for the States there to enjoy full use of their Colorado River compact and title.

So I am very supportive of the legislation, and I know that you will move with it, as you do. I admire very much what you do with your jurisdictional areas, Senator Abdnor. You have proven your abilities with passing and sponsoring some of the most significant legislation we have done in the U.S. Senate, and with success.

So I think that we want to assure that those who choose to build there are at their own peril. If they want to do that, insurance guaranteed and sponsored by the Feds will not be there to bail them out.

I thank you, Mr. Chairman. I appreciate that.

Senator **Abdnor**. We thank you. I am very happy to have your input because you are so close to the problem. And thank you for taking the time to stop by.

So with that, you can proceed, Colonel.

STATEMENT OF COL. EDWARD A. STARBIRD, DEPUTY DIRECTOR OF CIVIL WORKS, PACIFIC DIVISION, CORPS OF ENGINEERS—Continued

Colonel **Starbird**. Sir, I would like to summarize a few of the more important issues in our testimony

In general terms, the corps supports the floodplain management aspects of the legislation. The 1944 Flood Control Act assigned to the corps the responsibility to prescribe regulations for the use of the storage allocated for flood control at all reservoirs constructed with Federal funds and having flood control as a project purpose. This includes specifying the flood control play for the system of reservoirs protecting the lower Colorado River.

The flood control regulations for Hoover Dam, which were first established in 1935, and which were revised later in 1957, 1968, and 1982, do indeed recognize the traditional target maximum flood control release of 40,000 cubic feet per second.

Anticipating the filling of Lake Powell, the Bureau of Reclamation and the corps initiated a study in 1977 to update the flood control regulations. It was an exhaustive study, taking 5 years to complete, and it established the flood control regulations now in effect. The plan is consistent with the Boulder Canyon Act of 1928, which authorized construction of Hoover Dam and established flood control as the dam's principal operating priority. Water supply and hydroelectric power have the second and third priorities.

Our studies have shown that the Colorado River is too large for control of flow rates from Hoover Dam to less than 40,000 cubic feet per second without establishing much larger reservoir space requirements that would sacrifice water.

During the 1983 and 1984 floods, the combined efforts of a number of Federal agencies resulted in the control of both floods to maximum rates not appreciably exceeding 40,000 cubic feet per second. Compare, if you will, this controlled discharge to the peak flow rates of 127,000 cubic feet per second in 1983, and 145,000 cubic feet per second in 1984 that would have occurred if the existing reservoir system had not been in place.

The corps believes that a floodway is needed that can accommodate the 40,000 cubic feet per second or a one in 100-year river flow, which is greater, from Davis Dam to the international boundary. Corps policy is to review and update flood control regulations for the Federal projects as conditions change. Removing or minimizing constraints on releases will enhance all the intended benefits from the Colorado River water resources projects.

The main reason for all the damage and hardship in 1983 along the lower Colorado River was the encroachment of development in the floodway. During the mid-1970's, the Federal Government provided warnings and guidance concerning the proper use of the floodplain lands there. However, land development pressures prevailed.

This legislation would establish the floodway and discourage future development vulnerable to flooding.

In summary, we support the floodway. However, the corps does not support new legislation that would compensate the 1983 Colorado River flood victims. Such legislation could set a precedent for future claims for compensation, and even repeated compensation to flood victims on this and other rivers throughout the United States.

The corps also does not support new legislation authorizing relocation of floodplain residents unless a comprehensive study and analysis shows that this would be feasible and economically justified.

Sir, that summarizes my testimony. I am pleased to be here and would welcome any opportunity to answer any questions you might have.

Senator **Abdnor**. Thank you, Colonel. We are very pleased to have you here. We have quite a group of people scheduled to testify today, but I do want to ask just a few questions.

Commissioner, to protect the existing development in a floodway area, how much water storage would have to be eliminated behind the upstream dams? And what are the economic costs in terms of water supply? What water users would be affected by this?

I can give you the question again. Did you catch all of that? How much water storage would have to be eliminated behind the upstream dams? And at what economic costs in terms of water supply is this?

Mr. **Duvall**. Mr. Chairman, to reply to your question, I would have to check with technical people on my staff to give you actual quantifiable numbers as to the effect that the flood reserve area in the reservoirs would have to be increased if we were to specify a certain maximum flow on the river within the flood table that we presently have.

To place that into an economic value would probably be subjective even at that point. I can, in a more generic term, respond by saying that there is no question but what if there is a significant reduction in the maximum flow that is to be released into the river, the only way, based upon our present facilities, that we could accommodate that reduced flow would be by increasing the margin that is retained in our reservoir system in order to withhold that water.

That would be at the expense of the authorized or the allocated beneficial users of the water, which is basically the M&I waters, the municipal, industrial users and the agricultural irrigation users to whom the water has been allocated for use benefits. Also, there would be a detrimental effect to the power users.

If you desire, we could provide a statement for the record that would give you more specific details.

Senator ABDNOR. Why don't you take a shot at this in more detail if you want to, and if it cannot be done, you can provide the data.

How many acres of land will be in the floodway?

Mr. DUVALL. I would have to get you that answer.

Senator ABDNOR. Fine. How would the Bureau determine the boundaries of the floodway that is described in S. 1696?

Mr. DUVALL. The boundaries would be ascertained on the basis of the projected water releases and the existing levee system. It is a question of how much water you can put through the existing protection mechanism that we have for flood control. The boundaries of the levee would be a combination of where the existing high water lines are and where those are interfaced with the levee network that is in place—some of which is still under construction, I might add.

Senator ABDNOR. Mr. Thomas, how many claims for Federal flood insurance were filed as a result of the 1983 flooding in the proposed floodway area?

Mr. THOMAS. In the 1983 flood we received—we paid 184 claims for approximately $2.9 million.

Senator ABDNOR. Those have been settled?

Mr. THOMAS. Pardon me?

Senator ABDNOR. All of those have been settled?

Mr. THOMAS. Yes, they have been closed. And it is both Arizona and California claims.

Senator ABDNOR. Well, is there any remaining potential Federal liability?

Mr. THOMAS. In the sense of disaster assistance payments, yes. At that time, we also paid out about $4.9 million in Federal disaster assistance payments. That takes into account both the Public Assistance and Individual Assistance Disaster Programs that we had.

Senator ABDNOR. Does that cover a number of things?

Mr. THOMAS. I think they would be separate, the insured properties, treated as separate from disaster assistance in the sense of you cannot collect twice for the same thing.

Senator ABDNOR. Is that part of that 183 claims you mentioned?

Mr. THOMAS. That would be separate from the 183 claims.

Senator ABDNOR. Do you have any idea how many such claims——

Mr. THOMAS. For disaster assistance?

Senator ABDNOR. Yes.

Mr. THOMAS. I do not know. I could try to find that out for the record.

Senator ABDNOR. Maybe for the record you could tell us, I think it would be interesting.

How much has the Federal Government spent in the floodway as a result of the 1983 flooding?

Mr. THOMAS. That is a very difficult question because there are so many different kinds of Federal assistance. The Flood Insurance Program is directed at structures, per se. It does not deal with infrastructure. It only deals with walled and roofed structures, residences and businesses.

The Disaster Assistance Program of FEMA deals with public facilities. There are other Federal programs as well, some of them on Federal property. It would be difficult to get a full assessment of that.

Senator ABDNOR. Do you have many claims still pending that you have not settled?

Mr. THOMAS. None to my knowledge in the area of insurance. I believe they are pretty well settled in the disaster assistance area as well.

Senator ABDNOR. Let me ask you this, do you believe that if S. 1696 was to pass into law, would it be a major disincentive to development in the floodway?

Mr. THOMAS. I think it would be a disincentive to development in the floodway because it would affect other types of Federal investment in infrastructure and other types of structures affected by the Insurance Program; yes.

Senator ABDNOR. Do you know, Mr. Thomas, is FEMA currently developing Federal flood insurance maps for any of the proposed floodway areas?

Mr. THOMAS. Yes, FEMA has a number of studies underway affecting approximately 18 miles of the Colorado River floodway. I would be pleased to provide a lot of detail on that for you in terms of the identities of the communities, and the location of the studies.

Senator ABDNOR. Fine. That will be good.

Colonel, let me ask you, has the corps reevaluated its operating criteria for flood control storage behind the Colorado River dams since the 1983 and 1984 flooding?

Colonel STARBIRD. Sir, the corps continuously does that, and the operating criteria have not appreciably changed.

Senator ABDNOR. What process does the corps use to determine the flood control operating regulations for Federal reservoirs?

Colonel STARBIRD. The process includes a great deal of consultation, particularly with the Bureau of Reclamation. It includes assessment of weather forecasting. It includes new calculations, where appropriate, of expected runoff.

Senator ABDNOR. You get comments from the States and counties and other Federal agencies in this when you do that?

Colonel STARBIRD. Yes, sir.

Senator ABDNOR. So they are heard from on that?

Colonel STARBIRD. Yes, sir.

Senator ABDNOR. Which would entail the need for a greater floodway capacity below Davis Dam, operation of the upper Colorado River dams for a 40,000 cubic feet per second flood release, or the 1 in 100-year flood release? Which would entail the need for greater floodway capacity?

Colonel Starbird. Sir, probably the 1 in 100-year flood flow. It must be recognized that flood flows come not only from upriver through Hoover Dam and on down, but also from the lower Colorado basin tributaries, the Gila, the Bill Williams and other smaller tributaries. They do not all enter at the same place.

Last year when the corps testified that a floodway defined with a figure like 70,000 cfs was appropriate, 40,000 of that represented flows down from Hoover Dam; 7,000 represented a flow from the Bill Williams, which comes in about at Parker Lake at Parker Dam; and 22,500 represented a maximum flow down the Gila River, which comes in much farther down.

The question then arises, how likely is it that all these maximum flows will coincide. And the answer is that it is reasonably likely that they could because the high flow rates coming down the mainstem Colorado River when they occur, last for many, many months. And that is ample time for flash flooding to come in from the tributaries.

The corps presently has no position on what the 100-year flood in that reach is.

Senator Abdnor. You probably do not want to find out either. Well, gentlemen, I have other questions we will submit, particularly for you, Commissioner. We will submit those in writing.

We thank you very much for appearing before the committee and we will be awaiting your replies to the written questions. Thank you very much.

Mr. Duvall. Thank you, sir.

Senator Abdnor. Our next panel is Mr. Vernon Valantine, chief engineer of the Colorado River Board of California, Los Angeles, CA. He is accompanied by Mr. Gerald Zimmerman, executive director of the Upper Colorado River Commission out of Salt Lake City, UT. And we have Mr. Anthony Drennan, Sr., chairman of the Tribal Council of the Colorado River Indian tribes in Parker, AZ. Mr. Jack Rose, district II supervisor of the Mohave County Board of Supervisors, Kingman, AZ. And Mr. Edward Osann, who is director of the Water Resources Program of the National Wildlife Federation. That brings quite a crew up here all at one time.

Mr. Valantine, you go right ahead.

Let me say that your entire statements will be placed in the record, and if possible, we will ask you to summarize it or at least condense it as much as possible because we do have some limitations on time. But we do not want to rush you too much.

Go right ahead.

STATEMENT OF VERNON E. VALANTINE, CHIEF ENGINEER, COLORADO RIVER BOARD OF CALIFORNIA, ACCOMPANIED BY GERALD R. ZIMMERMAN, EXECUTIVE DIRECTOR, UPPER COLORADO RIVER COMMISSION

Mr. Valantine. Thank you, Mr. Chairman. My name is Vernon E. Valantine. I am the chief engineer of the Colorado River Board of California.

I have been designated by Gov. George Deukmejian to represent him on matters concerning Colorado River operations, and have been asked by the representatives of the Governors of the other six Colorado River Basin States to appear on their behalf. Accompanying me today is Gerry Zimmerman, executive director of the Upper Colorado River Commission who has a few words to say also.

You have before you an 11-page single-spaced statement of position on Senate bill 1696, the Colorado River Floodway Protection Act by the seven Colorado River Basin States. And as you said, we would like that to be entered into the record.

Senator ABDNOR. Without objection it will be made a part of the record.

Mr. VALANTINE. I will just cover, very briefly, some of the major thrusts of those 11 pages and will be glad to respond to any questions you may have.

Senator ABDNOR. Fine

Mr. VALANTINE. Very briefly, the purpose of this legislation and the reason it has achieved unanimous support of the Colorado River Basin States is that it would assist in limiting future encroachment into the flood channel below Davis Dam, thereby affording the protection of human life, property, natural resources, and permitting the existing reservoirs of the Colorado River system to be operated as planned for the multiple purposes of flood control, water conservation, and power generation.

Unless further encroachment into the flood channel is discouraged, it may be necessary to provide flood protection for such developments by using some of the reservoir storage space now used for water conservation. To maintain vital water yields in this arid basin, this storage space would then have to be replaced by building additional water conservation facilities elsewhere in the Colorado River system.

In addition to being supported by the Governors of the seven Colorado River Basin States, the political organizations and subdivisions of the States are also supporting this legislation, including those agencies and cities directly affected along the lower river. For example, the city of Needles, CA—one of the cities directly affected by flooding—has written to the committee in support of S. 1696.

The bill's accomplishments would be achieved with essentially no cost to the Federal Treasury. In addition, significant future savings to the Federal Treasury would accrue through the bill's prohibition on Federal expenditures in the floodway.

The question might be asked as to why this bill should be enacted now. Would not a delay be beneficial to allow further consideration.

This bill has been on the table since early 1984. And here in 1986, and with the necessity for the review of the task force that will be provided by the bill, and the establishment of the floodway through engineering studies, and its consideration by the task force, it will take probably 18 months to 2 years before the floodway could be established. Thus, from the time of the 1983 flood until the time that we could see some effect of control and preservation of floodway, some 5 or 6 years would have passed.

The basin States, their representatives, entities within the States, and the official State organizations have considered this legislation very carefully, have developed amendments to it to try to meet the needs of the entities and communities along the river, and believe that it is timely for enaction at this time.

The basin States' representatives have also considered S. 498 as introduced by Senator DeConcini, which is also concerned with problems relating to the 1983 high Colorado River flows. In analyzing Senator DeConcini's bill, we concluded that it is oriented primarily toward the reimbursement of persons along the Colorado River floodway for damages that they may have suffered as a result of high flows, and would not meet the river management and public safety purposes sought by the basin States.

The basin States' representatives have concluded that S. 1696 will accomplish these purposes. We are united in our support for this legislation and urge passage of S. 1696.

We have also been in communication with Peter Carlson, director of the water resources project, Environmental Policy Institute. He states that the Environmental Policy Institute supports S. 1696. He would have appeared today but because of jury duty he is unable to do so, and asks permission to submit a statement to the committee in a few days.

Senator **ABDNOR**. Without objection we will make it a part of the record. The record will stay open for a few weeks.

Mr. **VALANTINE**. Thank you.

Senator **ABDNOR**. Mr. Zimmerman, do you have a brief statement?

Mr. **ZIMMERMAN**. Yes, I do.

Senator **ABDNOR**. All right.

Mr. **ZIMMERMAN**. I am here representing the Upper Colorado River Commission and the four upper division States. I just wanted to indicate that the commission and the upper division States, Colorado, New Mexico, Utah and Wyoming fully support the written testimony as provided in Mr. Valantine's written statement. And that we encourage the expeditious enactment of S. 1696.

We feel that the establishment of the 100-year floodway as described in that bill will enable the Federal, State, Indian tribal, and local entities to manage the Colorado River system according to the multiple purposes that has been enacted by Congress.

Mr. Chairman, I have a written statement that I would like included in the record.

Senator **ABDNOR**. Your statement will be made a part of the record. And we certainly thank you, Mr. Zimmerman, for coming all the way from Salt Lake to testify on this legislation.

Mr. Anthony Drennan, Sr., who is chairman of the Tribal Council of Colorado River Indian Tribes

STATEMENT OF ANTHONY DRENNAN, SR., CHAIRMAN, TRIBAL COUNCIL, COLORADO RIVER INDIAN TRIBES

Mr. **DRENNAN**. Mr. Chairman, my name is Anthony Drennan. I am the chairman of the Colorado River Indian Tribes.

Senator **ABDNOR**. Let me interrupt you to say your entire statement will be made a part of the record.

Mr. **Drennan**. Thank you. With me today I have Mr. William Lavelle, who is the tribal attorney for the tribes.

We would like to thank you for this opportunity to present this testimony to you. The Colorado River Indian Reservation is located along the Colorado River in western Arizona and southeastern California.

I have a map, Mr. Chairman, that will give you an idea of what we are talking about. This is the Arizona side, and this is the California side (indicating). And we have the Colorado River coming through our reservation here, which we have approximately 111 miles of riverfront adding both sides.

The largest portion of the reservation lies in La Paz County in Arizona, while smaller portions are in Riverside and San Bernadino Counties in California. The reservation is approximately 46 miles long and 12 miles wide with an area of 270,000 acres. The Colorado River meanders through the reservation providing approximately 111 miles of riverfront property that would be subject to any floodway legislation. With this amount of river frontage, the Colorado River Indian Tribes are the largest single riverfront property owner along the Colorado River, excepting only the Federal Government.

The Colorado River Indian Tribes have a population of 2,916 members. The unemployment rate on the reservation fluctuates between 35 and 45 percent of the employable members of the tribe. The reservation economy depends on agriculture, Government employment, and recreational tourism. The largest employers include the U.S. Bureau of Indian Affairs, the United States Indian Health Services, the Colorado River Indian Tribes, the county of La Paz and the State of Arizona.

Approximately 85,000 acres on the reservation are currently developed as agricultural lands. Another 35,000 acres are still to be developed. Recreational tourism has the potential to become a major contributor to the reservation economy and is heavily dependent on activities along the Colorado River.

The government of the Colorado River Indian Tribes is addressing the problems caused by unemployment and the depressed agricultural economy on the reservation by a program of development of other resources. These include recreation development along the Colorado River and elsewhere, mineral development, and commercial and industrial development. This program of development is consistent with the Federal policy of self-determination for Indian tribes.

To the extent that either of these bills would impeded this development effort we oppose them. Specifically, we oppose the restrictions on leasing of Indian lands imposed by section 13 of S. 1696. The Colorado River Indian Tribes have not authorized construction of any permanent improvements in the floodplain of the Colorado River on the reservation, nor do we intend to. We are not the problem. We have in the past, and will continue to work with the existing laws and regulations concerning flood insurance and other floodplain related matters.

If there is to be legislation on this subject we prefer the approach taken by the DeConcini substitute. It would appoint a task force to study the problem and report its recommendations for action to

Congress. This would allow a more deliberate solution to be reached after careful weighing of many aspects of this complex problem.

Specifically, it would allow the task force to study the unique nature of Indian lands and laws governing Indian reservations along the river. The provisions of section 6 of S. 1696 would seem to restrict the expenditure of all Bureau of Indian Affairs and Indian Health Service funds within the floodplain, except those exempted by the general terms of section 7. This would lead to confusion.

There are sufficient Indian lands along the river to require separate handling of Federal expenditures on Indian reservations under any bill on this subject. A thorough study of all Bureau of Indian Affairs, Indian Health Service and other Federal problems on these Indian reservations is required by statutory provisions which could be seriously affected if these programs are adopted. We believe that the DeConcini substitute is better suited for this purpose than S. 1696.

If S. 1696 is to be considered, there are several amendments we would suggest. First, the application of the law to Indian lands, including a definition of a floodplain on these lands, be subject to special regulations to be promulgated by the Secretary of the Interior. These regulations would be developed in consultations with the Indian tribes affected after a thorough study of the consequences of the legislation on all Federal programs on these reservations, and the special problems on each reservation caused by tributary inflows and other physical conditions peculiar to each reservation.

We also propose that the bill be amended to provide funds to the affected Indian tribes to enable them to participate fully in the development of these regulations. The funds could be administrated through Public Law 93-638.

The purposes of S. 1696 and the DeConcini substitute to minimize the loss of human life, protect health and safety, and minimize damage to property along the Colorado River are commendable. The Colorado River Indian Tribes has always administered its lands in a way that is consistent with these purposes and will continue to do so.

If further Federal legislation is needed to achieve these purposes, we believe the better approach is provided by the DeConcini substitute in that it provides a more deliberate approach to reaching a solution. S. 1696 seems to jump to the solution and then provide for a method to justify it.

The Colorado River Indian Tribes has commissioned a study to assist us in the technical analysis of this bill. We respectfully request, Mr. Senator, that the record of this hearing be kept open for 30 days to allow for submittal by us and other interested parties for additional comments.

And just to add on the map here, Parker Dam is up in the corner here, and we have a diversion dam in here (indicating). We have tributaries coming onto the reservation here, and another tributary to the Colorado River is the—another wash, which is pretty large here on the southern portion of the reservation. So we are looking at something that we need to have further studies on.

Senator ABDNOR. Thank you, Mr. Drennan.

Mr. Rose?

STATEMENT OF JACK ROSE, DISTRICT II SUPERVISOR, MOHAVE COUNTY BOARD OF SUPERVISORS

Mr. Rose. Mr. Chairman, I am Jack Rose, Mohave County supervisor, district II. I represent the area on the Arizona side of the river from Davis Dam almost all the way down to Parker Dam.

I am here today on behalf of the Mohave County Board of Supervisors to testify in favor of the Colorado River Floodway Protection Act and the DeConcini amendments. Mohave County fully supports this legislation. We believe in reasonable flood control measures and feel that S. 1696 would begin to solve some of the problems left over from the 1983 Colorado River flood.

Rather than reading through the rest of my statement, I will just summarize the major points that I would like to make.

Senator Abdnor. That will be fine. We will be happy to place your statement, in its entirety, in the record.

Mr. Rose. Thank you.

Three major points. The first point, there has been a great deal of contention over the 100-year flood level. After the 1983 flooding, the Federal Government came up with a figure of 70,000 cubic feet per second for the 100-year flood flow. This figure was arrived at by figuring a maximum flow of 40,000 from Davis Dam and by adding in three simultaneous 100-year storms in three areas along the Colorado River, which would total the 70,000.

Senator Abdnor. I am just curious, what do you base it on? I guess the one in 100 years, right?

Mr. Rose. Yes, the chance of it happening once every 100 years.

Senator Abdnor. And this is about as severe as you could have? You anticipate it and then figure from there or what?

Mr. Rose. Yes, that is the way the Federal agencies handle it.

Senator Abdnor. I know I hear it all the time. I just do not know how it is computed.

Mr. Rose. It is just one of those standard figures that they have to do to decide where development stops and where the floodway begins. And 1 in 100-year flow is just an arbitrary figure.

Senator Abdnor. It can happen.

Mr. Rose. But the chances that these three storms would occur simultaneously up and down the Colorado River, and that it would happen in a year when there was very heavy snowmelt at this particular time is not 1 in 100. According to our data, it would be more like 1 in 1,000. Of course, we can understand why the Bureau would want to get that figure up as high as possible. But we do need to be reasonable about it.

The U.S. House of Representatives agrees with this assessment that I have just outlined. On page 11 of Report No. 99-261, it clearly states that, "It is the committee's judgment that the Secretary's analysis of the 1 in 100-year river flow should not arbitrarily assume that flood inflows from all tributaries occur simultaneously."

It is obvious that the House committee feels that it is important to lower that figure to a more reasonable level. Since 1983 Mohave County has had a virtual moratorium on development adjacent to the river. And the reason for this is because we have not been able to define where the floodway is. Whatever the 100-year flood flow, we would like to have it set so that we can determine where development can occur and where it cannot occur. And that is what we would like to solve with the committee.

The second concern that I have with the committee is the size of the committee. There would be approximately 46 members of the task force. I believe that it is just too large of a group to make any real progress. The meetings would be interminable, and I doubt if they would accomplish much. In fact, it would be possible with that large of a group to reach a deadlock and to get no decision at all. Or worse, the task force could come up with a political floodway.

For example, since Needles, CA wants 40,000 cubic feet per second and Mohave County can live with 50,000 cubic feet per second, the task force, in order to get a majority support could possibly come up with a flood flow of 50,000 on one side of the river and 40,000 on the other side of the river, which is totally absurd, but in order to get a majority support that could possibly happen.

I would recommend that the committee be reduced to 15 members in order to represent all the major interests, down from 46. I would include one representative from the States of California, Nevada, and Arizona; the Secretary of the Interior; the Bureau of Reclamation; FEMA; the Army Corps of Engineers; the Colorado River Indian Reservation; and the seven counties in which the floodway is located.

These 15 members do represent all major interests. And if the committee feels that it is important to have input from the other 31 listed members, I could possibly suggest that they be made advisory committee members without a formal vote on the committee.

The last concern that we have is with the implementation of the task force report. The language is vague enough to allow the Secretary of the Interior to ignore the task force report. I believe that language needs to be inserted that would make it clear that the Congress wants the Secretary to implement the conclusions of the task force, if at all possible.

I believe that it is important that the Federal Government, the State governments, and the counties work together to solve this problem. There are many diverse interests that need to be considered. The people downstream in southern California and central Arizona that need high water flows during the summer months should have their concerns alleviated. The power users that need large amounts of electricity during the hot summer months should have their concerns looked at closely. And the counties that are adjacent to the floodway need to work with the Federal Government in order to ensure safe, responsible development.

That is what we want in Mohave County, and we are willing to work with you in order to achieve this.

Mr. Chairman, I thank you for the opportunity to speak before you.

Senator **Abdnor**. We thank you, Mr. Rose.

Our last witness on the panel is Mr. Osann. Happy to have you here.

STATEMENT OF EDWARD OSANN, DIRECTOR, WATER RESOURCES PROGRAM, NATIONAL WILDLIFE FEDERATION

Mr. **OSANN**. Thank you. For the record, my name is Edward Osann, and I am the director of the Water Resources Program with the National Wildlife Federation.

Mr. Chairman, this legislation is an excellent example of nonstructural approach to flood damage reduction. It will cost the Federal Government very little. It has tremendous potential to avoid flood damage in the future, and we strongly support the enactment of S. 1696.

The denial of subsidies to development will save the Treasury in a couple ways. By cutting expenditures for new development at the front end, and indirectly, by reducing the demand for disaster assistance and flood insurance payments in the future.

Whatever the 100-year floodplain may be ultimately determined to be, Mr. Chairman, it is a statistical inevitability that there will be additional high flows passed through the lower Colorado, and that this area will flood in the future. Given that statement of fact, it simply makes eminent common sense that further floodplain development should be avoided.

We support the enactment of the bill, but there are a couple areas that I think we would recommend could benefit from some further improvement.

The riparian communities in the Southwestern United States are extremely important wildlife habitat. That is, the corridors of vegetation along the rivers in that part of the country. And the value of this habitat increases as the amount of native riparian habitat has decreased.

What we have at this stage, Mr. Chairman, is a very small fraction of the original native riparian habitat that is left in the Southwest. Approximately half of the river mileage of the Colorado River has been inundated or impounded by the Colorado River storage facilities. And out of the remainder, a large proportion of what is unimpounded has been developed for agricultural or urban uses. The amount that is available in a more natural state is really quite limited.

The Colorado River Floodway Act presents an excellent opportunity to preserve and enhance some of the limited remaining riparian habitat along the Colorado River. And we would recommend for the committee's consideration that protection of fish and wildlife habitat and the restoration of riparian habitat be included as one of the purposes of the bill, and be accounted for in the management regimes that are proposed by the Secretary of the Interior. We have several specific recommendations that are contained in our testimony along those lines.

Second, with regard to the exemptions that included in the act of the itemization of activities that may be permitted within the floodway. We think that most of these are quite reasonable given the fact that major portions of the floodway have been developed.

We do believe, however, that allowance for future levee construction is a mistake and would be inconsistent with the purposes of the act. Construction of new levees would serve to restrict the floodway and narrow it, rather than allowing it to pass major flows unimpeded.

We have no problem with the operation and maintenance, and even the replacement of existing levee works in the area, which are quite important. But we would commend to the committee's attention our proposal that the construction of new levee works within the floodway not be allowed.

Also before the committee is the legislation introduced by Senator DeConcini, S. 498. We believe that S. 1696 is a preferable bill. Our review of S. 498 leads us to believe that it would do little to prevent further property damage from flooding on the lower Colorado River.

We are pleased to be able to support this legislation, Mr. Chairman. And we recommend to the committee's attention simply a couple opportunities for improving it.

Senator **ABDNOR**. Thank you, Mr. Osann. Are those recommendations set out in your written statement?

Mr. **OSANN**. Yes, they are, Mr. Chairman.

Senator **ABDNOR**. So we have those; good.

Well, we have had some very fine testimony on both sides of the proposal. I know the committee will be looking it over very carefully.

Let me ask Mr. Drennan something. How many acres of land do the Colorado River Indian Tribes own in the proposed floodway? Do you have any idea?

Mr. **DRENNAN**. In the floodway itself?

Senator **ABDNOR**. Yes.

Mr. **DRENNAN**. No, I would have to ask the technical people that.

Senator **ABDNOR**. Well, maybe we will have you submit that in writing along with some questions we might prepare.

Let me ask both Mr. Rose and Mr. Drennan. We have not had that much testimony on the other side of the bill here. Do you believe that the Federal Government should continue to provide various types of development incentives to the floodway area?

Mr. **ROSE**. No, I do not. I have to agree with the Federal representatives that encouraging development in the floodway is something that the Federal Government should not be doing.

But the big question is, where is the floodway. I think that is where the disagreement is. Their definition of the floodway and my definition of the floodway are probably two different animals.

Senator **ABDNOR**. You tend to agree, Mr. Drennan?

Mr. **DRENNAN**. Well, there is a unique situation with our reservation and our relationship with the Federal Government. And some of the relationship is that there is some responsibility for the Bureau of Indian Affairs and the Indian Health Service to provide assistance to Indian tribes.

So in that respect, I would have to say yes.

Senator **ABDNOR**. Well, gentlemen, first let me say we will hold the record open for 30 days to receive responses to any written questions from the subcommittee, and any additional comments from the witnesses or interested public. If you gentlemen think of something you did not include that we should look at, please feel free to submit a letter or something in writing.

I know this is kind of a rushed hearing. We have a long way to go yet, but this committee will give it very special consideration.

I have to admit, right now we are wondering what the House is going to do to the bill we sent over there. Between our new water policy bill and this, we will do our best to give it the proper time and study and come up with something anyway.

Thank you very, very much for your attendance. Some of you people have come a long way and we thank you.

I think with that we will bring the hearing to a close. And the subcommittee will stand in adjournment.

[Whereupon, at 3:31 p.m., the subcommittee hearing was adjourned.]

[Statements submitted for the record and responses to additional questions follow:]

STATEMENT OF SENATOR ALAN K. SIMPSON
BEFORE THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON WATER RESOURCES
REGARDING S. 1696
THE COLORADO RIVER FLOODWAY PROTECTION ACT

Mr. Chairman, The Colorado River Floodway Protection Act -- S. 1696 -- is a very important piece of legislation that will affect the entire lower Colorado River Basin states.

The head waters of the Green River -- a river which is a major tributary of the Colorado River -- are found in the western portion of Wyoming. This legislation, however, will focus on the Colorado River and its unusually high river flows from Davis Dam, located on the Arizona-Nevada state line, west of Kingman, Arizona, and the United States-Mexico border, some 250 miles to the south. Concerns have continued to mount following the September 1983 flooding of the Colorado River. The concerns I refer to are those of the local residents and federal officials who have witnessed an increased movement of home-dwellers and businesses into the floodway of the Colorado River.

S. 1696 recognizes the natural fact that the Colorado River will periodically flood, despite the major river control provided by existing dams all along the stretch of the Colorado. Because of this very real potential for

FLOODING, THE RISKS ARE HIGH THAT PERSONAL INJURY AND PROPERTY DAMAGE WILL OCCUR IN THE FUTURE FOR INDIVIDUALS WHO CHOOSE TO DEVELOP PROPERTY WITHIN THE RIVER FLOODWAY.

AS A CONSEQUENCE, IT IS NECESSARY TO WITHDRAW MOST FORMS OF FEDERAL ASSISTANCE TO NEW DEVELOPMENT WITHIN THE AREA ALONG THE COLORADO RIVER WHICH MAY RECEIVE PERIODIC FLOODING. THE COLORADO RIVER FLOODWAY PROTECTION ACT WOULD NOT OTHERWISE ALTER THE EXISTING MANAGEMENT OF THE COLORADO RIVER. BY ENACTING THIS LEGISLATION, THE CONGRESS WILL SIMPLY ESTABLISH A COURSE OF CONDUCT WHICH SAYS THAT IF AN INDIVIDUAL WISHES TO PLACE A BUSINESS OR RESIDENCE WITHIN THE FLOODWAY, THAT INDIVIDUAL MAY DO SO AT HIS OR HER OWN RISK AND SHOULD NOT EXPECT THAT RISK TO BE INSURED BY THE FEDERAL GOVERNMENT.

THE ANSWER IS NOT IN REQUIRING MORE FLOOD CONTROL CAPACITY BEHIND EXISTING DAMS. ALL OF THE SEVEN COLORADO RIVER BASIN STATES, INCLUDING WYOMING, HAVE AN INTEREST IN PROTECTING THE EXISTING CONSERVATION STORAGE ALONG THE COLORADO RIVER. THIS STORAGE HAS COME ABOUT AS A RESULT OF MAJOR INVESTMENTS BY THE BASIN STATES. TO INCREASE THE FLOOD CONTROL CAPACITY BEHIND THE DAMS AND ALONG THE RIVER WOULD NECESSARILY REQUIRE A DECREASE IN CONSERVATION STORAGE CAPACITY, WHICH IN TURN WOULD REQUIRE EXPENSIVE NEW INVESTMENTS IN REGULATORY AND CONSERVATION STORAGE PROJECTS IN ORDER FOR THE SEVEN COLORADO RIVER BASIN STATES TO ENJOY FULL USE OF THEIR COLORADO RIVER COMPACT ENTITLEMENTS.

FOR THESE REASONS I HAVE PLEDGED MY SUPPORT TO THIS LEGISLATION AS A COSPONSOR AND AM GRATEFUL TO THE SENATOR FROM SOUTH DAKOTA -- SENATOR ABDNOR -- FOR CONDUCTING THIS HEARING.

TESTIMONY OF
COMMISSIONER C. DALE DUVALL
BEFORE THE SUBCOMMITTEE ON WATER RESOURCES
OF THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ON S. 1696, A BILL
"TO ESTABLISH A FEDERALLY DECLARED FLOODWAY FOR THE COLORADO RIVER BELOW DAVIS DAM"

April 22, 1986

Mr. Chairman and members of the committee, I appreciate the opportunity today to present the views of the Department of the Interior on S. 1696, a measure addressing the problem of development in the Colorado River floodway. The proposed legislation would designate a federally declared floodway on the Colorado River between Davis Dam in Arizona and Nevada and the Southerly International border with Mexico; preclude provision of most forms of Federal assistance to new development within the floodway; and establish a task force to assist in the determination of the floodway boundaries.

The Department of the Interior supports enactment of S. 1696. We support what we understand to be the technical and clarifying amendments to this bill presented by the Federal Emergency Management Agency.

The Department does not, however, support any amendment of S. 1696 to authorize additional compensation to persons suffering economic losses from 1983 Colorado River Flooding which is over and above that which may be provided by current law.

The Colorado River is an important resource to the communities along the river, to the region, and to the Nation. Water supplied by projects on the river is essential to the continued development of the seven Colorado River Basin States and to maintaining a high standard of living in the region. The number of people served by Colorado River water is a strong indicator of the river's importance. Almost 15 million people, living along the coastal plain of Southern California and in the Denver, Salt Lake City, Las Vegas, and Phoenix metropolitan areas, depend upon the Colorado to meet a significant proportion of their water needs.

About 510 billion gallons were delivered in 1984 for municipal and industrial uses. In addition to its importance as a water supply, the Colorado River system generates a large quantity of electrical power. Approximately 25 billion kilowatt hours were produced at Federal powerplants in 1985. Hoover Dam alone, in a normal year, generates about 4 billion kilowatt hours,-- enough power to light approximately 500,000 homes.

About 1.4 million acres of cropland are irrigated by Colorado River water each year. In 1984, crops produced from these lands had a gross value of over $760 million.

In the early years of this century, major floods regularly occurred on the Colorado, devastating portions of Yuma and other downstream communities and destroying roads, railroads, canals and other public works facilities. Control of this flooding was one of the major purposes for the construction of Hoover Dam. Projects constructed on the river and its tributaries over the past 60 years have given us the capability to effectively regulate the river and significantly reduce peak flood flows.

The river is also an important recreation resource in Arizona, Nevada, and southern California. The Lake Mead National Recreation Area recorded about 6.2 million recreation visits last year and it is estimated that another 5 million visitor days of use occur along the river downstream of Davis Dam.

This proposed legislation is modeled after the Coastal Barrier Resources Act (P.L. 97-348; 96 STAT 1653), which was enacted in October 1982. In that legislation, Congress found that coastal barriers contained important resources that were being irretrievably lost to development, that the barriers contained high hazard areas that were intrinsically unsuited to development; and that actions of the Federal Government had subsidized and encouraged this unsuitable development. In that legislation, Congress withdrew Federal development assistance from undeveloped coastal barriers along the Atlantic and Gulf Coasts.

IN MANY WAYS THE SITUATION ON THE COLORADO RIVER IS ANALOGOUS TO THAT ON THE COASTAL BARRIERS.

THE ENCROACHMENT ON THE FLOODWAY HAS BECOME A GROWING PROBLEM. IF THERE WAS ANY QUESTION ABOUT THE NEED FOR ACTION, THE HIGH FLOWS OF 1983, 1984, AND 1985 HAVE PROVIDED A CLEAR INDICATION THAT WE MUST ENSURE THAT THE FLOODWAY IS AVAILABLE TO HANDLE ABOVE NORMAL FLOW LEVELS.

THE HISTORY OF THE "LAW OF THE RIVER" IS DIRECTLY RELATED TO MAINTENANCE OF THE FLOODWAY. FOR OVER 50 YEARS, TREATIES, LAWS, COMPACTS, AND OPERATING AGREEMENTS HAVE BEEN DEVELOPED ASSUMING AN ADEQUATE FLOODWAY BELOW DAVIS DAM. WATER CONSERVATION IS CRITICALLY IMPORTANT ON THE COLORADO RIVER. THE AVERAGE ANNUAL FLOW THROUGH THE RIVER SYSTEM IS APPROXIMATELY 15 MILLION ACRE-FEET.

THE UPPER BASIN STATES HAVE BEEN APPORTIONED 7.5 MILLION ACRE FEET BY COMPACT, AND THE LOWER BASIN STATES HAVE BEEN APPORTIONED 7.5 MILLION ACRE FEET BY COMPACT. ALSO THE REPUBLIC OF MEXICO HAS BEEN APPORTIONED 1.5 MILLION ACRE-FEET BY TREATY. THEREFORE, TOTAL APPORTIONMENTS ARE 16.5 MILLION ACRE-FEET.

ONCE THE WATERS OF THE COLORADO RIVER SYSTEM HAVE BEEN FULLY APPROPRIATED, IT CAN BE SEEN THAT THE RIVER WILL BE OVERALLOCATED. THIS IS A MAJOR PROBLEM FACING THE SEVEN BASIN STATES AND THE FEDERAL GOVERNMENT.

THE COLORADO RIVER SYSTEM REPRESENTS A MULTIBILLION DOLLAR STATE AND FEDERAL INVESTMENT IN FACILITIES TO PROVIDE WATER CONSERVATION, FLOOD CONTROL, POWER, RECREATION, AND FISH AND WILDLIFE BENEFITS TO THE CITIZENS OF THE STATES ALONG THE COLORADO RIVER. THE FLOODWAY IS DESIGNED TO ACCOMMODATE FLOWS THAT MAY BE ANTICIPATED TO OCCUR IN THE FUTURE. IN THE ABSENCE OF POSITIVE ACTION, REAL

ESTATE DEVELOPMENT IN THE FLOODWAY WILL REDUCE ITS CAPACITY TO HANDLE HIGH FLOWS. IF THIS OCCURS, DEMANDS FOR INCREASING THE AMOUNT OF FLOOD CONTROL SPACE RESERVED IN THE RESERVOIRS CAN BE ANTICIPATED. MEETING THESE DEMANDS COULD ENTAIL A MAJOR LOSS IN EXISTING WATER AND POWER SUPPLIES TO THE DETRIMENT OF MILLIONS OF PEOPLE IN THE REGION.

THE NECESSITY OF MAINTAINING AN ADEQUATE FLOODWAY BELOW DAVIS DAM CANNOT BE OVEREMPHASIZED. FOLLOWING THE HIGH FLOWS OF 1983, THE NATIONAL WEATHER SERVICE INITIATED A PROGRAM TO IMPROVE ITS FORECASTING CAPABILITY IN THE COLORADO RIVER BASIN. IT SHOULD BE UNDERSTOOD, HOWEVER, THAT HIGH FLOWS ARE POSSIBLE EVEN WITH THIS IMPROVED FORECASTING CAPABILITY. ALTHOUGH THE TOTAL WATER SUPPLY OF THE COLORADO HAS BEEN ALLOCATED, SOME OF THE FACILITIES FOR ITS USE HAVE NOT YET BEEN CONSTRUCTED. STORAGE FACILITIES ARE FILLED TO THEIR OPERATING LIMITS AND FREQUENT RELEASES OF EXCESS WATER MAY BE NECESSARY IN THE SHORTTERM. THIS CONDITION CAN BE EXPECTED TO CONTINUE UNTIL THE ALLOCATED WATER SUPPLY IS FULLY USED OR A PERIOD OF DEFICIENT WATER SUPPLY OCCURS. MAINTAINING AN UNIMPEDED FLOODWAY IS ESSENTIAL IF PROPERTY LOSSES AND THREATS TO PUBLIC SAFETY ARE TO BE KEPT AT A MINIMUM AND MULTI-PURPOSE PROJECT BENEFITS ARE TO BE OPTIMIZED.

DEVELOPMENT HAS OCCURRED ALONG THE RIVER LARGELY BECAUSE OF UNREALISTIC EXPECTATIONS CONCERNING THE PROBABILITY OF HIGH FLOWS. AFTER COMPLETION OF HOOVER DAM, IN 1935, AND PARTICULARLY DURING THE FILLING OF LAKE POWELL FROM 1963 UNTIL 1980, GENERALIZED FLOODING OF THE COLORADO RIVER WAS LARGELY UNKNOWN. MANY PEOPLE BECAME COMPLACENT AS THE YEARS PASSED WITHOUT A SERIOUS THREAT OF HIGH COLORADO RIVER FLOWS. ALTHOUGH THIS SITUATION CHANGED AFTER LAKE POWELL WAS FILLED IN 1980, MANY WERE SLOW TO GRASP THE SIGNIFICANCE OF THE NEW SITUATION. THE NEAR FULL RESERVOIR CONDITIONS WERE OVERSHADOWED BY THE OCCURRENCE OF THE lowest water year on record in 1977 and the third lowest on record in 1981. Therefore, in spite of the Bureau of Reclamation's efforts to provide information on the changing situation and its implications along the lower Colorado, development continued.

In October 1976, the Bureau of Reclamation published a report, Riverflows Between Davis Dam and Yuma, Arizona, forecasting conditions and likely impacts from river flows. This report concluded ". . . a return to more normal riverflow conditions with the probability of sustained high rate allows resulting from flood control operations is in prospect. These sustained high-rate flows will cause water levels from [illegible] to 10 feet higher than the typical high-water levels of the past 13 years. Persons and organizations planning future construction should be aware that higher water levels are probable. Those who have existing structures and facilities which would be damaged by the higher flows should take appropriate precautionary measures." Further, all planning for river-oriented facilities should recognize the risk of floods greater than those discussed specifically in this report.

A series of meetings was held in communities along the river in conjunction with publication of this report. Unfortunately, drought conditions prevailed during 1976 and 1977 and it was difficult to develop interest in potential flood problems. Therefore development within the floodway continued.

The Bermuda Plantation area, in Mohave County, Arizona, is an example of the type of development that has occurred within the floodway. (See Lower Colorado River Location Map). This area consists mostly of mobile homes used as vacation and retirement homes along with a few conventional houses. Access to the area is provided by Dike Road, which is actually the levee constructed by the Bureau of Reclamation to contain the levee design flood. Efforts to maintain the integrity of the floodway are well documented in Bureau files and date back to 1961 when the developer agreed to insert a clause in the sales contract prohibiting any permanent construction within the levees. All efforts were ineffective in preventing encroachment.

Most of the federally owned lands along the river from Davis Dam to the United States-Mexican Border are administered by the Yuma District Office of the Bureau of Land Management, which has nearly completed its Resource Management Plan for the area. Previous leases on Federal land had general language concerning floodplain development; however, under this new plan, concessionaires and lessees will be required to plan and operate facilities in a way that is consistent with maintenance of the floodway.

While much of the economic loss in 1983 resulted from a drastic decline in tourism, significant damage to private structures did occur in some areas along the river. With the exception of flood damage in the vicinity of Topock Marsh and damage due to groundwater seepage in several locations, the damage was confined to areas within the floodway.

The proposed legislation does not prohibit development of lands within the floodway. What it does is eliminate the paradox of federally subsidized development that threatens the integrity of Congressionally authorized projects. There is nothing in the legislation that could prevent private entities from financing development, provided that they are willing to assume the risk. By requiring that information be furnished on floodway location and boundaries, the legislation provides the basis for an informed choice and allows the market to operate efficiently.

To successfully meet the challenges posed by increasing demands on the Colorado River, closely coordinated efforts will be required of private interests and government agencies at the local, State, and Federal levels. The establishment of the Colorado River Task Force to assist in floodway determination is a positive step toward better coordination. The delineation of a floodway by the Bureau of Reclamation and the development of guidelines by the Task Force will provide State and local governments much needed tools for planning and zoning.

I wish to reemphasize that the Department does not support any amendment of S. 1696 to provide additional compensation for economic losses from 1983 Colorado River flooding which is over and above that which may be provided by current law. Any such amendment may set an improper precedent for Federal compensation of all losses resulting from any future river flooding.

In summary, the Department of the Interior feels that this legislation establishes a reasonable balance between the interests of those who depend on the river for a consistent supply of water and power and those who live along the river.

United States Department of the Interior
BUREAU OF RECLAMATION
WASHINGTON, D.C. 20240

IN REPLY
REFER TO: 430

MAY 16 1986

Honorable James Abdnor
Chairman, Subcommittee
  on Water Resources
Committee on Environment
  and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Abdnor:

Thank you for your letter of April 23, 1986, that provided additional questions relating to my testimony on S. 1696, the Colorado River Floodway Protection Act. I am enclosing the answers to your questions and to those of Senator Stafford that were transmitted with your letter.

I appreciate your efforts on this bill and look forward to its passage.

Sincerely yours,

FOR
C. Dale Duvall
Commissioner

Enclosure

SENATOR ABDNOR

FOLLOW-UP QUESTIONS FOR BUREAU OF RECLAMATION REGARDING THE COLORADO RIVER FLOODWAY LEGISLATION, S. 1696

1. Commissioner Duvall, were the flows of the Colorado River highly irregular in the area of the proposed floodway before the construction of Hoover and the upstream dams? If it weren't for the regularity of flow established by these dams, would the type of development that is now in the floodway ever have occurred?

ANSWER: Prior to construction of Hoover Dam on the Colorado River, the lower Colorado River Basin was plagued by extensive flooding during the spring runoff season and occasionally in late summer after heavy rainfall. The destructive floods made widespread farming, recreation, and other uses in the lower reaches of the river nearly impossible. With the closing of Hoover Dam in 1935, it became possible to control flooding to a greater extent and to provide for a stable and dependable water supply.

Flood levels before the completion of Hoover Dam in 1935 were high and incapable of being controlled. Historical records between 1878 and 1986 indicate that annual maximum peak flows at Black Canyon (site of Hoover Dam) exceeded 100,000 cubic feet per second (cfs) 31 times, 110,000 cfs was exceeded 9 times, 120,000 cfs exceeded 5 times, 130,000 cfs exceeded 3 times, 140,000 cfs exceeded twice, and the largest flood was estimated at 300,000 cfs. The attached graph, "Flow Below Hoover Dam from 1906 thru 1986" indicates that flows were greater than 100,000 cfs six times during this period. After the construction of Hoover Dam, the flood flows were substantially reduced.

Water year 1957 illustrates the effect of Hoover Dam in controlling these floods. In 1957, during a period of high flows, Bureau of Reclamation (Reclamation) records indicate the maximum mean daily inflow at Lake Mead was measured at 124,000 cfs. The graph of flow below Hoover Dam indicates that Hoover Dam was operated to control the flood, reducing the high water flows to a maximum mean daily outflow of only 18,400 cfs. The dam and reservoir systems on the Colorado River have significantly reduced the flood threat to the Lower Basin. If it were not for the regularity of flows established by these dams, the type of development that is now in the river's floodway could not have occurred.

2. To protect the existing development in the floodway area, how much water storage would have to be eliminated behind the upstream dams, and at what economic cost in terms of water supply? What water users would be affected by this?

ANSWER: To evaluate the storage volume required in the reservoir system to eliminate flooding, a computer simulation of the 1983 calendar year inflow through the storage reservoirs was performed. This simulation was to determine the additional space required at the beginning of a calendar year which would theoretically protect the existing development in the floodway.

For this evaluation, it was assumed the releases at and downstream of Hoover Dam would satisfy the minimum downstream water requirements for the months of January through May. June releases at Davis Dam corresponded with actual June releases in 1983 for the first 19 days of the month. Releases for the remainder of June were assumed to be the maximum flow that could be made before significant damages to permanent structures would be expected to occur.

Therefore, releases from Davis Dam for the remainder of the year were not allowed to exceed 28,000 cfs. The resultant vacant reservoir space at the beginning of the calendar year, to allow control of flood inflow and to maintain Davis Dam releases to a maximum of 28,000 cfs, was determined to be 11.3 million acre-feet (maf). Lake Mead flood control regulations developed jointly by the Corps of Engineers and Reclamation require a minimum of 5.35 maf of effective space on January 1. Therefore, the system would require an additional 6 maf of effective space to satisfy these assumptions.

The States most affected by this reduction of stored water in the reservoirs would be Arizona and California. This would diminish the water available to the Central Arizona Project (CAP) and the Metropolitan Water District of Southern California (MWD). If the flood control space is increased in the reservoirs, it would entail a major loss of existing water supplies to the detriment of millions of people in the area.

The economic value of the water that would be lost due to the increased flood space was evaluated on the cost of water to the impacted areas. Ground water pumping costs in the CAP area for municipal and industrial (M&I) use are currently about $75 per acre-foot, and agricultural pumping costs are about $50 per acre-foot. Water delivered through the CAP system is estimated to cost about $100 per acre-foot for M&I use and $56 for agricultural use. The M&I water use in the MWD system is valued at about $250 per acre-foot while the agricultural use value is about $200 per acre-foot.

Assuming MWD's M&I price of $250 per acre-foot for storage water lost from the system, the total economic cost of the additional required vacant space in the reservoirs is $1.5 billion.

3. In your testimony you state that in the past the Bureau has taken steps to prevent development in the area of the proposed floodway. Could you be more specific as to what types of steps were taken? What is the Bureau doing now to discourage such development?

ANSWER: Efforts by Reclamation to maintain the integrity of the floodway are well documented with correspondence dating back to the early 1960's. After completion of Hoover Dam and the elimination of high river flows, many people along the river became complacent due to the controlled flows. In spite of our efforts to provide information on the changing situation with the reservoirs filling and the possibility of high flows, the development in the floodway continued. Reclamation published flood maps of the Colorado River and distributed copies to all the States, counties, and municipalities bordering the river. Information bulletins on acceptable use of floodplain lands were also published and distributed.

In October 1976, Reclamation published a report, Riverflows Between Davis Dam and Yuma, Arizona, forecasting conditions and likely impacts from river flows. This report indicated sustained high flows would cause water levels 4 to 10 feet higher than the typical high-water levels of the previous 13 years. A series of meetings was held in communities along the river in conjunction with the publication of this report. Also, news releases were used to inform both the general public and various agencies of the potential for high flows in the river.

To discourage and try to control the development in the floodway, Reclamation joined with the Arizona Department of Health in legal action for enforcement of flood plain regulations along the river. We have pursued action through the U.S. Attorney's offices to establish the legal propriety of the levee system. All of these actions were widely covered in the local press along the river. Reclamation is continuing to work with the county zoning commissions and the Federal Emergency Management Agency both in an official and advisory capacity to promote wise use of the Colorado River flood plains.

4. In the operation of Hoover and the other upstream dams, what does the Bureau presently assume to be the one-in-one hundred year flood below Davis Dam? Is this assumption likely to change under the provisions of S. 1696? Why or why not?

ANSWER: Recent hydrologic methods have created differences of opinion on the methodology most appropriate to determine a 1-in-100-year river flow for a river so controlled as the Colorado. Therefore, the size of the 100-year flood on the lower Colorado River has not been rigorously computed. The flood studies performed by the Corps of Engineers and Reclamation take into account releases from the mainstream dams and the addition of tributary inflows downstream of the dams. This is not an arithmetic accumulation, in that some tributary inflows do not occur simultaneously. There is only one discharge value, by definition, for a 100-year flood for any given reach of a river. A coordinated and comprehensive hydrologic engineering study is required to determine this value.

We expect the 100-year flood on the lower Colorado River under S. 1696, as now proposed, to be reasonably close to the existing levee design flows.

5. Approximately how many acres of land would be in the proposed floodway?

ANSWER: We have reviewed the floodway and find that it may include as many as 31,000 acres in the 260 miles between Davis Dam and the international boundary with Mexico. This total excludes the lakes behind the dams. However, this number reflects undeveloped lands in unchannelized sections of the river where it is free to meander between the levees and across the flood plain.

6. What percentage of the land in the proposed floodway is federally owned? Please provide a breakdown of the types, acreages, and uses of the various Federal lands in the floodway. Please describe how much and what kind of development, if any, is on these Federal lands.

ANSWER: Approximately 60 percent of the floodway is federally owned. Of the approximately 18,800 acres of federally owned lands, 12,000 acres are unused, 6,100 acres are in wildlife refuge, 100 acres are leased for recreation, and 600 acres are leased for agriculture.

An additional 30 percent of the land along the river is included in Indian Reservations, with title held in trust by the Secretary of the Interior. The Indian lands are generally undeveloped with some areas leased for agriculture. Several areas have been leased for private use as permanent and vacation type homes and for commercial and recreational facilities. The Tribes are continuing to increase their developed lands.

The refuge lands are generally undeveloped except for an estimated 400 acres planted for bird forage. Lands leased for recreation are restricted to day use or short term recreational vehicle parking with minimum service facilities.

6. Commissioner, how would the Bureau determine the boundaries of the floodway prescribed in S. 1696? What types of assumptions about river flows and operating criteria of the dams would have to be made?

ANSWER: Reclamation would determine the boundaries of the floodway from water surface profiles derived from standard backwater hydraulic computations. The floodway would comprise the conveyance area necessary to carry these flows, including considerations for potential river meanders in unchannelized or unstable reaches. The river flows are presently prescribed in the proposed legislation, and the operating criteria of the dams would be in accordance with the flood control regulations.

7. What type of development is presently in the floodway? How many private residences? Businesses?

ANSWER: The types of development in the floodway comprise agricultural usage, private homes, both permanent and vacation type, and commercial and recreational facilities. There are approximately 325 private residences and 125 commercial businesses located in the floodway.

8. What types of Federal assistance besides flood insurance will not be allowed for new development under the provisions of this act?

ANSWER: One of the purposes of the bill is to reconcile the conflict between floodway development and multiple purpose river management. Within the floodway, most forms of Federal development-related assistance would be prohibited. However, eligibility for disaster assistance would be continued within certain limits. The definition of the term "financial assistance" is virtually identical to the definition contained in the Coastal Barrier Resources Act, P.L. 97-348.

9. How much of the floodway is presently protected by levees? Will the levees dictate the shape of the floodway in these areas; i.e., will the boundaries of the floodway be defined by the levees?

ANSWER: Approximately 25 percent of the river system, excluding the lake areas, is protected by levees between Davis Dam and Mexico. The areas along the river that are protected by levees consist of approximately 95 percent of low areas of prime agricultural land and communities adjacent to the river. By 1988, another 3 percent of these lands will be protected. A significant length of the river also flows through areas containing steep natural banks adjacent to the river, thereby eliminating the need for levees in these areas. It is anticipated that in most areas the levees will define the floodway.

The major areas where development has occurred between the levees are in the vicinity of Needles, California, south of Blythe, California, and north of Yuma, Arizona.

10. Was all of the property damaged during the 1983 floods between the levees? If not, where and how much other damage was done?

ANSWER: All of the damage that occurred during the 1983 flood was within the original Colorado River floodplain. The major damage occurred in areas outside the levee system or in areas with no levees. The following is a list and explanation of the specific sites where damages occurred.

Bermuda Plantation - This is the only developed area located between the levees that sustained damage. Several permanent residences and a number of mobile homes were flooded by the high flows.

Topock Marsh - This area was flooded when the high flows overtopped the south dike forming the marsh. The damage was primarily loss of wildlife habitat.

Topock Rancheros - This consists of a small development of approximately 50 homes. This area was flooded as the water spread north from Topock Marsh.

Parker Strip - The Parker Strip is an intensively utilized reach of the river just downstream of Parker Dam. No levee system exists in this area since the river is contained by the natural topography. The area was severely affected by the high flows of 1983, although actual physical damage was not extensive.

Walter's Camp - This development, consisting of approximately 40 mobile homes, is located beyond the end of the Cibola levee approximately 25 miles south of Blythe, California. Many of these homes were damaged or made unsuitable for habitation by the high flows.

Gilmore's Camp - This development, located 2 miles south of Walter's Camp, was built on private property in a low area adjacent to the river. This development is not protected by a levee, and was flooded during the high flows. The development is a trailer park consisting of approximately 50 mobile homes.

Yuma Area - Some land outside the levee system in the Yuma, Arizona, area was damaged from high ground water during the sustained high flows. The high ground water caused flooding of septic tank sewer systems which resulted in contamination of wells. The high ground water also created problems on the adjacent agricultural land.

Losses to individuals from the flows in 1983 have been estimated to be $13 million, losses to Federal facilities at $85 million, and losses to State, county and local governments at $11 million. Losses to Federal facilities include the repairs to the spillways that were damaged at Glen Canyon and Hoover Dams. These losses could have been substantially greater had it not been for Reclamation's resistance to development between the levees. Also, meetings were held in communities along the river to inform the public and agencies of the potential for high river flows.

11. Please explain how the filling of Lake Powell affected the potential for flooding on the Lower Colorado River. Will the frequency of flooding now increase?

ANSWER: Lake Powell, behind Glen Canyon Dam, was filling during 1963 to 1980. This decreased the amount of water flowing downstream and virtually eliminated the flood threat in the Lower Basin during that time.

In contrast, instantaneous maximum flows in earlier flood years before the completion of Glen Canyon Dam were substantially higher: 25,800 to 31,200 cfs on the Colorado River below Davis Dam occurred during the years 1952, 1953, 1954, 1955, and 1958. During that time, corresponding flows on the Colorado River at the Northerly International Boundary with Mexico, were 21,000 cfs.

The chart, "Flow Below Hoover Dam From 1906 thru 1986," graphically portrays the reductions in flow below Hoover Dam as each of the reservoirs was completed and began to fill. With the filling of Lake Powell in 1980, flows in the Lower Basin can now be expected to be more representative of those in the 1941 through 1962 period rather than those during the 1963 through 1980 period. Also, Lake Mead was filling between 1935 and 1941.

13. In your testimony you mention that some facilities for the full use of the Colorado River have not been built yet. What are these facilities, how much will they cost, and do they require further congressional authorizations?

ANSWER: A number of facilities in the Colorado River Basin requiring full use of Colorado River waters are either under construction or yet to be built. The following is a list of these features:

UPPER COLORADO RIVER BASIN

Summary: Colorado River Water Remaining for Development from State Allotments as of 1986

State	Acre-Feet
Arizona	- 6,000
Colorado	- 719,000
New Mexico	- 160,000
Utah	- 429,000
Wyoming	- 356,000
	1,670,000

List of State-Approved Projects Proposed for Development that will Utilize Colorado River Waters

State	Project	Owner	Depletions (1,000 AF)	Cost 3/ (Millions)
	Municipal & Industrial	Navajo Indians	6	
Colorado	Municipal & Industrial	State	8	
	Denver Ex.	Denver	152	
	Homestake Ex.	Aurora	20	
	Colorado Springs Ex.	Colo. Spr.	5	
	Animas-La Plata	Federal	121	565

	Dallas Creek 1/	Federal	17	159.9
	Dolores 1/	Federal	74	436.4
	Fruitland Mesa	Federal	21	177.1
	San Miguel	Federal	25	139.7
	Savery-Pot Hook	Federal	12	155.8
	Upper Gunnison	State	34	
	West Divide	Federal	38	300.5
	Taylor	State	5	
	Stagecoach	Private	4	
	Ruedi Water Sales 2/	Federal	49	N/A
	Rock Creek	State	15	
	Bluestone	State	4	
	Green Mt. Water Sales 2/	Federal	2	N/A
	Thermal Electric	Private	10	
	Unidentified		103	
			719	
New Mexico				
	Animas-La Plata	Federal	33	565
	Navajo Indian Irri. Proj. 1/	Federal (BIA)	135 1/	526.1
	Hogback Extension	Federal (BIA)	3	
	Jicarilla Tribe Water Sales	Federal	3	N/A
	Utah International	Private	12	
	Navajo Reservoir Sales 2/	Federal	-16	N/A
	Buy Out Existing Uses	Private	-10	
			160	
Utah				
	Municipal	State	11	
	Bonneville Unit 1/	Federal	113	2,114.9
	Upalco Unit	Federal	12	131.7
	Jensen Unit 1/	Federal	12	78.1
	Uintah Unit	Federal	28	160.9
	Emery Co. Buy-out	Federal	-3	N/A
	Ute Indian Unit 4/	Federal	80	129.7
	DWR Projects	State	21	
	Thermal Electric	Private	53	
	White River Dam	State	6	
	Unidentified		96	
			429	
Wyoming				
	Irrigation	Private	36	
	Municipal	State	16	
	Seedskadee Wildlife	Federal	14	N/A
	Savery-Pot Hook	Federal	11	155.8
	La Barge	Federal	4	5.8
	Cheyenne Diversions	State	40	
	Fontenelle Contracts	State	117	
	Fontenelle Contracts	Federal	109	N/A
	Unidentified		9	
			356	

1/ Projects Under Construction
2/ Projects Complete
3/ Price Estimates - October 1986
4/ New Federal Authorization Necessary

LOWER COLORADO RIVER BASIN

The Central Arizona Project (CAP) and delivery facilities, currently under construction, are expected to require a total of approximately 140,000 acre-feet (af) in calendar year 1986. The CAP facility is not expected to be fully operational until at least 1992. Total capacity of the CAP aqueduct will be 3,000 cfs which equates to a maximum annual diversion capability of 2.17 maf.

Certain facilities serving Indian reservations have not been completed and, as a result, some Indian water rights are not fully utilized.

The State of Nevada is not diverting its full consumptive use apportionment (300,000 af). In 1984, Nevada diverted approximately 174,000 af. Return flow to the Colorado River was almost 73,000 af which was credited to the State. Therefore, the consumptive use for 1984 totaled approximately 101,000 af.

14. Have weather and runoff prediction capabilities improved significantly since the National Weather Service (NWS) began to upgrade its facilities in 1983?

ANSWER: The upgrade in the forecasting system was initiated in 1983. However, the enhanced data network will not be completely installed until the end of this year. It will require additional time to establish the new database and to fully incorporate it into the forecasting models.

To reduce unexpected flood flows downstream of Hoover Dam requires an accurate, seasonal volumetric runoff forecast early in the season (January through April). Analysis of the forecast indicates that during this period, the major component of uncertainty in the forecast arises from the inability in predicting future climate (weather) conditions. Consequently, we will continue to expect a great deal of uncertainty in these early season forecasts mainly because of our inability to accurately predict future long-term weather events.

However, the upgrades in the forecasting system have already provided the following benefits:

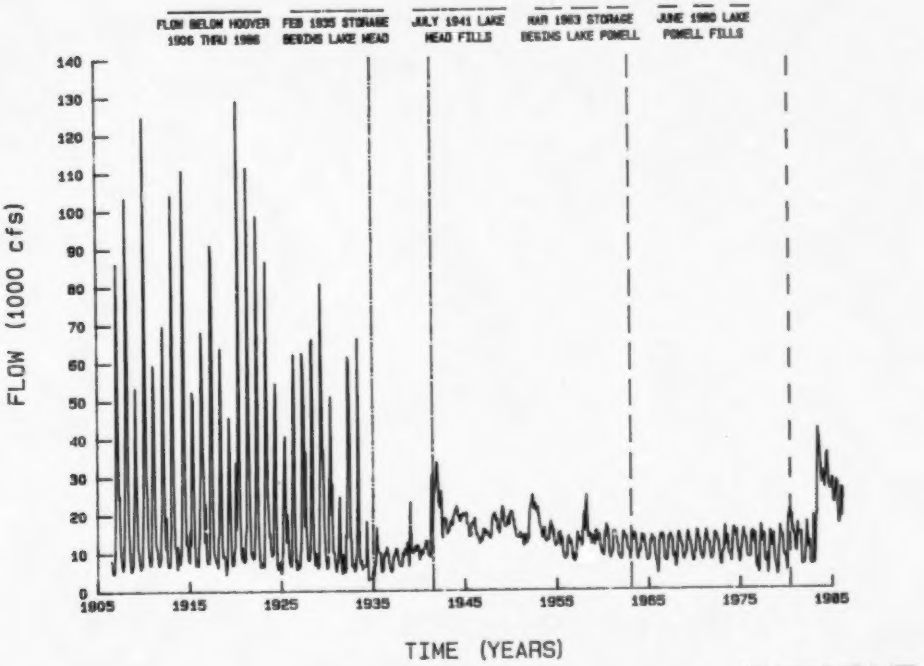
A. More timely updates of the forecasts through the forecast season (January through July).

B. Realtime monitoring of hydrologic conditions in the Basin during the runoff season (April through July).

C. More rapid conversion and use of physical-based forecasting models. These models, together with the enhanced data network, offer the potential for improved capabilities in predicting extreme events over the previously used statistical models. Our experience with the forecast during the extreme runoff of 1984 and higher flows of 1985 and 1986 is confirming this expectation. In addition, the physical-based models can provide probabilistic water supply forecasts, given current basin conditions, for a variety of assumed future weather scenarios, thus providing the reservoir operator a more informed basis for making early release decisions.

An ongoing effort to continue to improve weather and runoff prediction capabilities in the Colorado River Basin is being pursued through a cooperative and coordinated research and development effort by several Federal agencies. This is a major attempt to find ways to objectively incorporate the products of new technology into the operational forecasting procedures. The benefits of these efforts, however, will realistically not be felt until sometime in the future.

FLOW BELOW HOOVER DAM FROM 1906 THRU 1986
1000 cfs



plot prepared: MAY 1, 1986

CHAIRMAN STAFFORD

FOLLOW-UP QUESTIONS FOR BUREAU OF RECLAMATION REGARDING THE COLORADO RIVER FLOODWAY LEGISLATION, S. 1696

1. As I understand it, there is some dispute over the correct size of the 100-year flood in the Lower Colorado. Could you give us your thoughts on whether 70,000 cubic feet per second is correct, or whether a lower figure is correct?

ANSWER: Nearly everyone living along the lower Colorado River has his or her own opinion as to the value that should be used for the 100-year flood. Recent hydrologic methods have created differences of opinion on the methodology most appropriate to determine a 1-in-100-year river flow for a river so controlled as the Colorado. Therefore, the size of the 100-year flood on the lower Colorado River has not been rigorously computed. The levee immediately downstream of Davis Dam was designed to accommodate a flood release of 50,000 cubic feet per second (cfs) and the design includes the addition of tributary inflows downstream of the dams.

There is only one discharge value, by definition, for a 100-year flood for any given reach of a river. A coordinated and comprehensive hydrologic engineering study is required to determine this value. Reclamation is working on the development of the maximum probable flood that can be expected to occur along the Colorado River, and the 100-year flood can also be determined from this study.

2. As I understand it, local interests want to set a lower figure for the 100-year flood, such as 50,000 cubic feet per second. What is your reaction to that? What would be the effect of the lower number on operation of the system?

ANSWER: The 50,000 cfs figure would only be an arbitrary value, not truly reflecting the flood potential, and it would also be ignoring the significant tributary inflows in the 260 miles downstream of Davis Dam. There is no basis for selecting any particular flowrate or an arbitrary value for establishing the 100-year floodway. A very detailed and comprehensive study is required to determine this value.

If the reservoir system operation were rewritten to guarantee a 50,000 cfs maximum flow, a severe reduction would be required in the reservoir conservation pools. With a substantial increase in the flood control space in the reservoirs, the tributary inflows which are uncontrolled would still exceed the 50,000 cfs value. Davis Dam is designed to discharge a maximum flow of 280,000 cfs, and Parker Dam is designed to release a maximum of 400,000 cfs.

3. The bill creates a task force to advise the Federal agencies in drawing up flood maps. Do you believe the recommendations of the task force should be mandatory? If not, why not?

ANSWER: We feel very strongly that the recommendations of the task force should be advisory, not mandatory. The task force should provide information and recommendations to the Secretary of the Interior. The final decisions and responsibility must be retained by the Federal Government and administered by the agency with jurisdiction over the river operations, which is the Bureau of Reclamation. It would be virtually impossible to develop a consensus from the proposed task force, considering the diverse interests and number of individuals represented on the task force as proposed by the legislation.

4. What is the maximum volume of water that can be released from Davis Dam?

ANSWER: Davis Dam is equipped with three 50 foot-square fixed wheel regulating gates on the spillway and two 22 by 19 foot radial gates in the outlet works. Assuming a full reservoir at elevation 647 feet above mean sea level, the maximum release through the powerplant and the combined spillway and outlet gates would be about 280,000 cfs.

5. Your testimony seems to indicate that since the completion of the filling of Lake Powell in 1980, flooding below Davis Dam will be more frequent. Is this true?

ANSWER: From 1963 to 1980, Lake Powell behind Glen Canyon Dam was filling and decreasing the amount of water flowing downstream. This virtually eliminated the flood threat in the Lower Basin during that period of time.

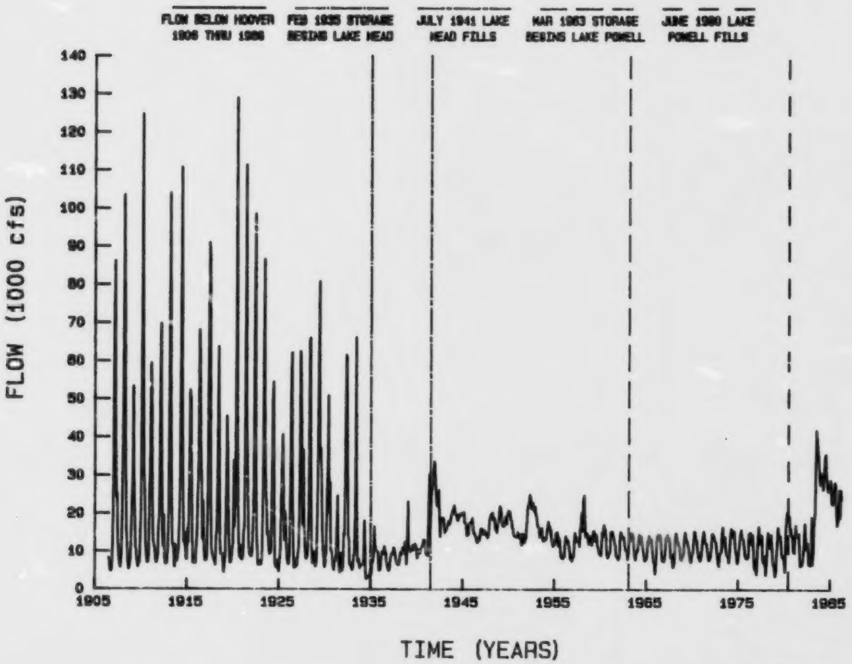
In contrast, instantaneous maximum flows in earlier flood years before the completion of Glen Canyon Dam were substantially higher. Flows varied between 25,800 to 31,200 cfs on the Colorado River downstream of Davis Dam during the years 1952, 1953, 1954, 1955, and 1958. During that time, corresponding flows on the Colorado River at the Northerly International Boundary with Mexico were 21,000 to 25,390 cfs.

The chart "Flow Below Hoover Dam from 1906 thru 1986," graphically portrays the reduction in flows downstream of Hoover Dam as each dam was completed and the reservoirs began to fill. With the filling of Lake Powell in 1980, river flows in the Lower Basin can now be expected to be more representative of those in the 1941 through 1962 period than of those during the 1963 through 1980 period. The filling of Lake Mead occurred between 1935 and 1941.

Prior to the construction of Hoover Dam, the lower Colorado River was plagued by extensive flooding during the spring runoff season, and occasionally in late summer after heavy rainfall. The flood levels were high and incapable of being controlled. Historical records indicate that maximum peak flows at Black Canyon (site of Hoover Dam) exceeded 100,000 cfs 31 times between 1878 and 1986. With the construction of Glen Canyon and Hoover Dams, the flood flows have been substantially reduced.

AVAILABLE

FLOW BELOW HOOVER DAM FROM 1906 THRU 1986
1000 cfs



plot prepared: MAY 1, 1986

Testimony of April 22, 1986

Colorado River Floodway Bill S 1692

Questions From Senator Abdnor

Chairman, Subcommittee on Water Resources

To the Federal Emergency Management Agency

Question 1.
Mr. Thomas, how many claims for Federal flood insurance were filed as a result of the 1983 flooding in the proposed floodway area?
How many of these have been settled?
How much has the Federal government spent of these claims?
What is the remaining potential Federal liability?

The total insurance claims paid in Arizona and California numbered 184 for $2,912,600. All claims filed have been settled. There is no remaining Federal insurance liability for unpaid claims associated with the 1983 flood.

Question 2.
What percentage of people and businesses that are located in the floodway are presently eligible for Federal flood insurance?
How many of these people actually have Federal flood insurance?
Would either S.1696 or the Deconcini Amendment in some way make people who presently not eligible for flood insurance, eligible?
If so, how?

All people and businesses located in communities participating in the flood insurance program are eligible for flood insurance. According to Bureau of Reclamation estimates, 300 residential and 150 commercial properties are located in the floodway. Data for National Flood Insurance Program Policies are collected by community and therefore include properties located outside and inside the floodway. We estimate that there are 400 policies on structures located adjacent to or within the floodway. We do not know if any properties are insured independent of the National Flood Insurance Program, but a number of the mobile homes currently in the floodway may have private flood insurance under their homeowners policy.

All communities adjacent to the Colorado River now participate in the National Flood Insurance Program. Therefore all property owners are now eligible for flood insurance and are expected to be eligible in the future.

Question 3.
Mr. Thomas, besides flood insurance payments, what other forms of Federal disaster assistance are available to people in the floodway?
How much has the Federal government spent in the floodway as a result of the 1983 flooding?
Does any more remain to be spent?

Federal Disaster Assistance takes the form of public and individual assistance and may involve flood fighting as well as recovery assistance. It may be made available through programs of the Federal Emergency Management Agency the Small Business Administration, the Farmers Home Administration, Corps of Engineers, Bureau of Reclamation, and Federal Highway Administration. I am able to provide expenditure data for the largest of these, FEMA's disaster assistance programs. The combined FEMA individual and public assistance payments for the 1983 flood total $4.9 million of which $3.3 million were paid in Arizona and $1.6 million were paid in California. Of the $4.9 million, $ 2.8 million were paid for 15 public assistance projects in Arizona and $1.2 million were paid for 13 public assistance projects in California. An estimated $.7 million of the public assistance project funds, allocated remains to be spent. The remaining $.9 million was spent for individual assistance, $.5 million was spent in Arizona and $.4 million in California.

Question 4.
Mr. Thomas, do you believe that if S.1696 is made law it will be a major disencentive to development in the floodway?

As law, S.1696 would be a disincentive to development in the floodway because it would deny access to Federal assistance for development and discourage prudent developers. However development based entirely on private resources would be possible, particularly the placement of mobile homes in the Colorado River floodplain. Federal ownership of floodway land (which may not be cost effective) may be the only certain way of precluding such future development. However, if the communities which border the Colorado River adequately enforce floodplain management ordinances that meet National Flood Insurance Program minimum criteria, the carrying capacity of the FEMA designated floodway should be preserved and future development in the remainder of the 100-year floodplain should be adequately protected from flood damage due to a 100-year flood.

Senator Abdnor

Questions for Federal Emergency Management Agency

Question 5.
Mr. Thomas, is FEMA currently developing federal flood incurance maps for any of proposed floodway area? If so, how much of the area has been mapped so far, and when would you anticipate the work will be completed? Are these the existing NFIP maps that are referred to in the explanation of your suggested technical changes to the bill? What assumptions are being made with regard to the hypothetical flooding event below Davis Dam which determines the boundaries of the floodplain in the maps; particularly, is the so called hundred year flood being used, and if so, what is that flow assumed to be?

FEMA is currently preparing detailed Flood Insurance Rate Maps for the City of Bullhead City, Arizona (10.7 miles) and in the Bermuda Plantation Area of Mohave County, Arizona (7.5 miles). When this mapping is completed, there will be 40.4 miles of the east bank and 13.0 miles of the west bank of the Colorado River completed by detailed analysis so far. At this point, we do not anticipate that the remaining areas along the river will be studied by detailed methods. In performing a detailed analysis, profiles of the 10-, 50-, 100-, and 500-year flood events and 100-year floodway are usually developed. However, only the 100-year and 500-year flood and floodway boundaries are shown on the maps. The ongoing effort noted above will be completed by June 1987.

The eighteen month timeframe referenced in the technical issues raised by S.1696 is needed to modify the maps of all the communities affected by the floodway legislation. This timeframe includes preparation of revised maps incorporating the Colorado River floodway, a 90-day appeals period required by the Flood Disaster Protection Act of 1973, and time required to print and distribute the final maps.

Under the NFIP, the 100-year flood is used for the purpose of floodplain management and insurance rating. The various flow rates along the Colorado River are controlled by the Hoover Dam, Davis Dam and Parker Dam and vary from 50,000 cubic feet per second to 126,000 cubic feet per second downstream of Davis Dam to the Mexican border. The flows used for flood insurance maps were obtained from frequency analyses performed by the U. S. Bureau of Reclamation.

Question 6.
How does FEMA develop its flood control maps? Does FEMA work in cooperation with the Bureau of Reclamation and the Corps of Engineers when it develops its maps for the flood insurance program? Would the proposed technical changes you suggest to S.1696 effect the way in which the Bureau and FEMA would cooperate under the bill?

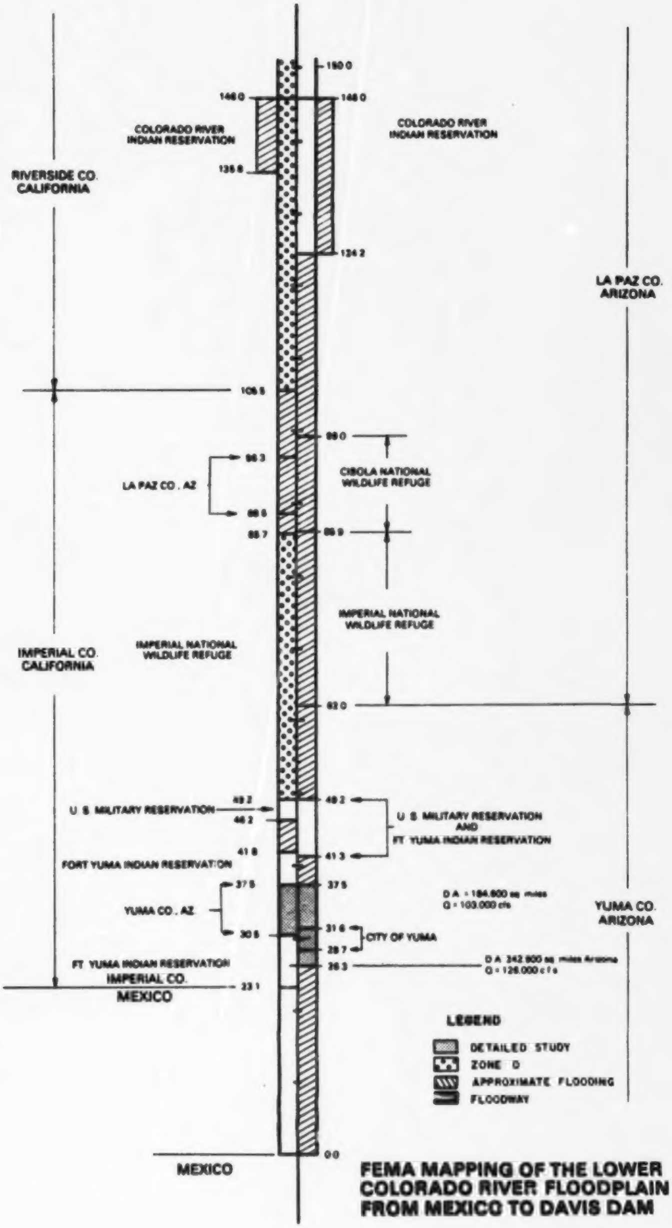
Flood Insurance Studies (FIS) are prepared by FEMA, with contracts either by private engineering firms or by government agencies such as the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, U.S. Soil Conservation Service, Tennessee Valley Authority, or the U.S. Geological Survey. The FIS begins with an initial consultation with the community where the scope of the study is established by considering areas which are developed or are likely to be developed within the next five years. Flood hazard areas are determined based on statistical analysis of historical records of rainfall, river flow, and reservoir regulation, where applicable. The geometric configuration of stream channels, shorelines, and other floodplain areas is obtained by ground or aerial surveys. Hydrologic and hydraulic analyses are then performed using this data and the results are prepared in a report and map format. Corps of Engineers Floodplain Information reports and USBR data are considered in the preparation of FIS's.

In the case of the Colorado River, through this reach, close coordination with the Bureau of Reclamation and the Corps of Engineers is warranted because of their control of the dams and reservoirs. The proposed technical changes to S.1696 would not affect the way in which the Bureau and FEMA cooperate.

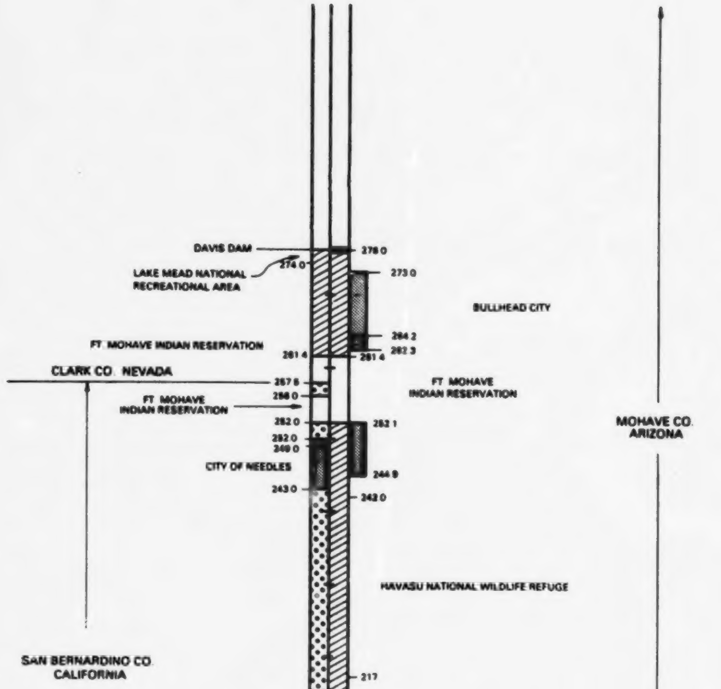
Question 7.
If no legislation is passed to declare the area below Davis Dam to be a federal floodway, what effect would a completed set of FEMA floodway maps have on development in the floodway area? What other forms of federal assistance are or should be affected in areas which FEMA has identified as being in a floodplain for the purposes for the purposes of federal flood insurance?

For purposes of the National Flood Insurance Program (NFIP), the floodway includes the channel of a river and the adjacent floodplain that must be reserved in a open state in order to discharge the base (100-year) flood without increasing flood levels more than one foot. This definition differs significantly from the Colorado River floodway in the proposed legislation. FEMA requires the community to designate a part of the 100-year floodplain as a "regulatory floodway" to avoid the possibility of significantly increasing upstream flood elevations. NFIP regulations allow development in the floodway fringe area, which is defined as the area between the 100-year floodplain and floodway boundary. However, development in the regulatory floodway is essentially prohibited. S.1696 legislation would set the Colorado River floodway limits at the 100-year flood boundary, but would only preclude direct Federal assistance in this area.

Executive Order 11988 requires all Federal agencies to use the FIS information to avoid direct Federal investment in flood-prone areas through construction or assistance programs. In conclusion, a completed set of FEMA floodway maps would probably restrict floodway and floodplain development to as great or greater extent than the proposed legislation. However, FEMA does not plan floodway mapping beyond the 40.4 miles presently completed or currently underway.


150.0
146.0
146.0
COLORADO RIVER INDIAN RESERVATION
COLORADO RIVER INDIAN RESERVATION
135.8
RIVERSIDE CO. CALIFORNIA
124.2
LA PAZ CO. ARIZONA
105.5
99.0
96.3
LA PAZ CO., AZ
CIBOLA NATIONAL WILDLIFE REFUGE
88.5
88.7
88.9
IMPERIAL NATIONAL WILDLIFE REFUGE
IMPERIAL CO. CALIFORNIA
IMPERIAL NATIONAL WILDLIFE REFUGE
62.0
49.2
U. S. MILITARY RESERVATION
49.2
46.2
U. S. MILITARY RESERVATION AND FT. YUMA INDIAN RESERVATION
41.8
41.3
FORT YUMA INDIAN RESERVATION
37.5
37.5
D.A. = 184,600 sq. miles
Q = 103,000 cfs
YUMA CO., AZ
YUMA CO. ARIZONA
30.5
31.6
CITY OF YUMA
28.7
FT. YUMA INDIAN RESERVATION
IMPERIAL CO.
26.3
D.A. 242,900 sq. miles Arizona
Q = 126,000 c.f.s.
23.1
MEXICO
LEGEND
DETAILED STUDY
ZONE D
APPROXIMATE FLOODING
FLOODWAY
0.0
MEXICO

FEMA MAPPING OF THE LOWER COLORADO RIVER FLOODPLAIN FROM MEXICO TO DAVIS DAM



FEMA MAPPING OF THE LOWER COLORADO RIVER FLOODPLAIN FROM MEXICO TO DAVIS DAM

DAVIS DAM
278 0
274 0
LAKE MEAD NATIONAL RECREATIONAL AREA
273 0
BULLHEAD CITY
264 2
262 3
FT. MOHAVE INDIAN RESERVATION
261 4
261 4
CLARK CO. NEVADA
257 5
256 0
FT. MOHAVE INDIAN RESERVATION
FT. MOHAVE INDIAN RESERVATION
252 0
252 1
252 0
249 0
CITY OF NEEDLES
244 9
243 0
242 0
MOHAVE CO. ARIZONA
HAVASU NATIONAL WILDLIFE REFUGE
SAN BERNARDINO CO. CALIFORNIA
217
PARKER DAM 192 4
192 7
191 8
D.A. = 182,700 sq. miles
Q = 50,000 c.f.s.
Floodway Calc
180 8
180 8
172 0
172 0
COLORADO RIVER INDIAN RESERVATION
166 0
LA PAZ CO., AZ.
COLORADO RIVER INDIAN RESERVATION
180
RIVERSIDE CO. CALIFORNIA

Senator Stafford

Questions for Federal Emergency Management Agency

Question 1.

As I understand it, there is some dispute over the correct size of the 100-year flood in the Lower Colorado. Could you give us your thoughts on whether 70,000 cubic feet per second is correct, or whether a lower figure is correct?

The Lower Colorado River is controlled by a series of dams for most of its length. The U.S. Bureau of Reclamation (USBR) has been assigned flood control responsibility for the Lower River by the Boulder Canyon Project Act and the Colorado River Front Work and Levee System Act.

The completion of Hoover in 1935 eliminated the extreme floods reaching downstream communities from the upper Colorado River basin. Parker and Davis Dams on the Colorado River added to the control of the river. Alamo Dam on Bill Williams River and Painted Rock Dam on Gila River, both flood-control dams constructed by the U.S. Army Corps of Engineers, added substantial control of those tributaries.

Anticipated 100-year frequency flow rates were determined by FEMA using information by the Bureau of Reclamation, the U.S. Army Corps of Engineers and other Federal agencies. These flow rates at various locations working downstream along the Colorado River are tabulated below:

Location	Control Structure	100-year Flow Rate, cubic feet per second
Bullhead City	Davis Dam	50,000
Needles, CA		70,000
	Parker Dam	
Parker, AZ		50,000
Upstream of Gila River Confluence		103,000
Yuma, AZ		126,000

Question 2.
As I understand it, local interests want to set a lower figure for the 100-year flood, such as 50,000 cubic feet per second. What is your reaction to that? What would be the effect of the lower number on operation of the system?

A 10% to 20% reduction in the flow rate along the Colorado River from Davis Dam to the Mexican border would reduce the 100-year flood elevation by a maximum of approximately one foot.

The National Flood Insurance Program (NFIP) floodways for both the effective and ongoing studies are delineated between existing levees. Therefore, any reduction in flow rates would not reduce the NFIP floodway width.

It is our understanding that the USBR is currently performing a state of the art hydrologic analysis to determine peak discharges for the mainstream of the Colorado River including all of its tributaries and analyzing the effect of the system of dams. At this time, the effect of this reanalysis is not known.

FEMA MAPPING OF THE LOWER COLORADO RIVER FLOODPLAIN

This report identifies the Federal Emergency Management Agency's (FEMA's) mapping of the Lower Colorado River Floodplain from the Mexican border, at river mile 0.0 to Davis Dam, at river mile 276.0.

The following describes the type of FEMA study and total river miles for each community with existing floodplain mapping:

Yuma County, Arizona

River Mile	0.0	to	62.0	=	62.0 miles
Detailed	8.3	miles	East	Bank	
	7.0	miles	West	Bank	
Approximate	42.9	miles	East	Bank	

City of Yuma, Arizona

River Mile	28.7	to	31.6	=	2.9 miles
Detailed	2.9	miles	East	Bank	

LaPaz County, Arizona

River Mile	62.0	to	192.7	=	130.7 miles
Detailed	11.0	miles	East	Bank	
Floodway	11.0	miles	East	Bank	
Approximate	63.1	miles	East	Bank	
Approximate	7.8	miles	West	Bank	

Mohave County, Arizona

River Mile	192.7	to	Davis Dam 276.0	=	83.3 miles
Approximate	74.0	miles	East	Bank	

Bullhead City, Arizona

River Mile	261.4	to	276.0	=	14.6 miles
Approximate	14.6	miles	East	Bank	

Imperial County, California

River Mile	23.1	to	105.5	=	82.4 miles
Approximate	16.4	miles	West	Bank	

Riverside County, California

River Mile	105.5	to	166.0	=	60.5 miles

No flooding developed

San Bernardino County, California

River Mile 166.0 to 257.5 = 91.5 miles
Approximate 1.5 miles West Bank

City of Needles, California

River Mile 243.0 to 250.0 = 7.0 miles
Detailed 7.0 miles West Bank
Floodway 6.0 miles West Bank

Clark County, Nevada

River Mile 257.7 to Davis Dam 276.0 = 18.5 miles
Approximate 14.5 miles West Bank

Totals	East Bank	West Bank
Approximate	194.6	40.2
Detailed	22.2	14.0

Refer to Straight Line Diagram for start and end of approximate and detailed study miles for each community.

3

The miles and types of floodplain mapping for the following preliminary communities: Bullhead City, Mohave County, Colorado River Indian Reservation, and Yuma County, Arizona, are shown below:

Bullhead City, Arizona

River Mile 261.4 to 276.0 = 14.6 miles
Prel. Detailed 10.7 miles East Bank
Prel. Floodway 1.9 miles East Bank

Mohave County, Arizona

River Mile 192.7 to Davis Dam 276.0 = 83.3 miles
Prel. Detailed 7.5 miles East Bank
Prel. Floodway 7.5 miles East Bank

Colorado River Indian Reservation, Arizona and California

River Mile 124.2 to 180.8 = 56.6 miles
Prel. Approx. 34.8 miles East Bank (AZ)
Prel. Approx. 23.0 miles West Bank (CA)

Yuma County, Arizona

No new flooding on Colorado River.

Totals	East Bank	West Bank
Approximate	34.8	23.0
Detailed	18.2	0.0

Refer to Straight Line Diagram for start and end of approximate and detailed study miles for each community.

Future studies are being conducted for San Bernardino County, California and Clark County, Nevada. However, no new flood mapping is being developed along the Colorado River for these communities.

Th 100-year frequency flow rates were determined by FEMA in conjunction with the U.S. Bureau of Reclamation and the U.S. Army Corps of Engineers. The flow rates for the 4 communities with existing detailed study areas are shown on the straight-line diagram.

Questions From Senator Robert T. Stafford, Chairman

Committee on Environment and Public Works

Question 3
The bill creates a task force to advise the Federal agencies in drawing up flood maps. Do you believe the recommendations of the task force should be mandatory? If not, why not?

Recommendations of the Task Force should not be mandatory. The National Flood Insurance Program is built upon an established system of delineating flood hazard using proven and legally defensible hydrologic and hydraulic methods. After the hazard has been delineated on maps, a community has a formal procedure and period for the review and appeal of the hazard delineation before a map becomes a legal document which must be incorporated in the community's floodplain management regulations. The proposed task force would have ample opportunity to review and affect floodway delineation under the existing National Flood Insurance Program procedures.

Question 4.
What is the maximum volume of water that can be released from Davis Dam?

FEMA defers to the technical expertise of the Corps of Engineers and the Bureau of Reclamation for a statement on the maximum amount of water that can be released.

Question 6.
(For FEMA) What forms of Federal compensation are currently available to victims of flooding on the lower Colorado River? Do most or all of the businesses and residents of the floodway now have Federal or private flood insurance?

Forms of Federal compensation available (depending upon the qualification of individuals) are flood insurance individual disaster assistance grants, temporary housing, small business loans, farmers home loans, and income tax casualty deduction.

All businesses and residents of the floodway located in participating communities are eligible for flood insurance. According to Bureau of Reclamation estimates 300 residential and 150 commercial properties are located in the floodway. Data for National Flood Insurance Program Policies are collected by community and therefore include properties located outside and inside the floodway. We estimate that there are 400 policies on structures located adjacent to or within the floodway. We do not know if any properties are insured independent of the National Flood Insurance Program, but a number of mobile homes currently in the floodway may have private flood insurance under their homeowners policy.

STATEMENT OF

COLONEL EDWARD A. STARBIRD
DEPUTY DIRECTOR FOR CIVIL WORKS,
PACIFIC DIVISIONS
U.S. ARMY CORPS OF ENGINEERS

ON

S. 1696
COLORADO RIVER FLOODWAY PROTECTION ACT

BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

APRIL 22, 1986

NOT FOR RELEASE
UNTIL RELEASED BY THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

STATEMENT OF
COLONEL EDWARD A. STARBIRD
DEPUTY DIRECTOR OF CIVIL WORKS,
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SUBCOMMITTEE ON WATER RESOURCES
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

Mr. Chairman and Members of the Subcommittee.

I am pleased to be here today to discuss the role of the Corps of Engineers in the Colorado River Floodway. The Corps of Engineers supports the flood plain management aspect of S. 1696, however, we do not support any legislation which would compensate the 1983 Colorado River flood victims.

We support what we understand to be the intent of FEMA in its clarifying and technical amendments.

Through the madia, nationwide attention focused on the snow melt flood conditions on the Colorado River in the spring and summer of 1983. Communities throughout the Colorado River system suffered economic losses and social hardship from the highwater conditions. The river also overflowed its banks in the Republic of Mexico enroute to the Gulf of California. Although less attention was given to the 1984 flood, it proved to be greater than the 1983 event in both peak flowrate and volume of runoff.

The combined efforts of a number of Federal agencies with water resource missions led to the control of both the 1983 and 1984 floods to maximum discharge rates not appreciably exceeding 40,000 cubic feet per second, the historic designation of minimum channel capacity below Hoover Dam. While there have been attempts to limit or prohibit development in the floodway represented by this minimum channel capacity inappropriate development has taken place and was damaged in the 1983 and 1984 floods.

If, in fact, the reservoir system did its part in controlling the floods, then why did all the damage and hardship occur along the Lower Colorado River? The reason is primarily due to the encroachment of development in the floodway during the last several decades and seepage under the levee systems. For example, substantial damages to recent construction in the Parker Strip area began when flowrates exceeded about 28,000 cfs. Several conditions have contributed to increased development in the Lower Colorado River Flood Plain: (1) Lack of large flood control releases from Hoover Dam during the 1960's and 1970's, (2) Extensive growth in water-based recreation along the river, and (3) Lack of effective land use controls. Between 1960 and 1982 most runoff was stored in upstream reservoirs completed between 1962 and 1966. The largest of these was Lake Powell behind Glen Canyon Dam which was completed in 1963. The upstream reservoirs have a total of 33 million acre-feet of storage, capacity.

Starting in the mid-1970's, a Flood Plain Information Program lead by the Bureau of Reclamation and fully supported by the Corps of Engineers provided both warnings and guidance concerning proper use of the flood plain lands of the Lower Colorado River. Unfortunately, development pressures associated with the attraction of location on the water's edge, left the Federal Government's warning unheeded. Such a legacy clearly identifies the need to establish a Federally declared floodway to limit future encroachment in the Colorado River downstream of Davis Dam.

The 1944 Flood Control Act assigned the Corps of Engineers responsibility to prescribe regulations for the use of storage allocated for flood control at all reservoirs constructed with Federal funds and having flood control as a project purpose. This includes prescribing the flood control plan for a system of reservoirs protecting the Lower Colorado River. The most notable structures include the Bureau of Reclamation's Blue Mesa Reservoir on the Gunnison River, Navajo Reservoir on the San Juan River and Lake Mead, formed by Hoover Dam on the main stem of the Colorado River, and the Corps of Engineer's Alamo Dam on the Bill Williams River and Painted Rock Reservoir, on the Gila River.

Flood control regulations for Hoover dam, initially established in 1935 and later revised in 1957, 1968 and 1982 continually recognized the traditional target maximum flood control release of 40,000 cfs. The Corps' role has consisted of developing and updating flood control operating criteria and regulations and monitoring flood conditions and compliance with flood control regulations. The Corps is also available for consultation during flood events. The Bureau has a primary responsibility in achieving all of the projects authorized purposes and operates the physical features of Hoover Dam and implements the flood control criteria. However, any deviation from the flood control plan must be authorized by the Corps of Engineers.

Following the construction of the upstream Glen Canyon Dam in 1963, a temporary, 17-year flow regime of highly controlled water supply releases was experienced along the Lower Colorado River. Unfortunately, this condition provided a false sense of security fostering flood plain encroachment downstream of Hoover Dam. The River was so regulated that it virtually ceased flowing below the last diversion dam in Mexico. However, with the filling of Lake Powell in 1980, a sleeping giant arose. The river returned to its previous regime and frequent flood control releases are again the norm.

Recognizing this flood potential, the Bureau of Reclamation and the Corps of Engineers jointly initiated a study in 1977 to update the flood control criteria for Lake Mead. The study was exhaustive, taking five years to establish the flood control criteria now in effect. The selected plan is consistent with the Boulder Canyon Act of 1928 which authorized the construction of Hoover Dam and established flood control as the dam's principle operating priority. Water supply and hydroelectric power were established as the second and third operating priorities, respectively. The selected plan includes features to deal with the encroachment - to the extent reasonably possible - while preserving water supply benefits and achieving a balance among the three purposes of flood control, water supply and hydropower.

Our studies to date have shown that the Colorado River flow is too large to control flow rates from Hoover Dam to less than 40,000 cfs without establishing extraordinary reservoir space requirements that would adversely affect water supply. For example, with all reservoir storage filled to control the flood of 1983, the minimum January 1984 space requirement of 5.35 million acre-feet was barely met in spite of reservoir evacuation releases in the range of 30,000 to 40,000 cfs. Greater reservoir space would not have been achieved unless either higher releases were made or unless Lake Mead was not permitted to fill in the summer of 1983. This would have also necessitated releases greater than 40,000 cfs during the 1983 spring flood season.

The Corps of Engineers believes that a floodway is needed that can accommodate 40,000 cfs or a one-in-one hundred year river flow, whichever is greater, from Davis Dam to the Southerly International Boundary. What this means is that in order to eliminate undue pressures to restrict releases from storage when needed to comply with the flood control operating plan and to reduce or eliminate damages to public and private property from planned flood control releases development within the area required to pass a 40,000 cfs flow must be very strictly controlled. One of the Corps primary Civil Works missions is hydrologic and hydraulic analyses of flood plain boundaries. The Corps of Engineers believes it can apply its experience and engineering expertise through the task force identified in S. 1696 to help establish a Colorado River Floodway.

The main reason for all the damage and hardship that occurred in 1983 along the Lower Colorado River is largely due to the encroachment of development in the floodway. Much of this development has taken place between the river and the levees. This development is estimated to be worth more than of $500 million and consists of about 300 homes and 150 businesses. Starting in the mid-1970's, the Bureau of Reclamation with the full support of the Corps of Engineers provided both warnings and guidance concerning the proper use of the flood plain lands of the Lower Colorado River. However, land development pressures overruled the Federal Government's warning.

The Corps of Engineers does not support new legislation which would provide for compensation of flood plain residents nor does it support relocation of flood plain residents unless a comprehensive study and analysis shows that this would be feasible and economically justified. We are of the opinion that legislation providing for compensation and relocation of floodplain residents would set a precedent for future claims for compensation on the Colorado River as well as other rivers of the United States. Such legislation could have a very adverse long-term impact by setting a precedent for continued and repeated compensation by the Federal government.

In summary, we support the flood plain management aspect of the legislation. Specifically: (A) The reduction of Federal costs by curtailing expenditures for activities within the designated floodway, (B) the formation of a task force to prepare recommendations concerning the management of the floodway, and (C) the designation of a floodway ultimately having a non-damaging capacity as stated which should reduce pressure to delay, or forego, high flood control releases, and assure that the flood control benefits attributable to Hoover continue to be realized. We would, however, like to see Section 7.(e)(5) expanded to allow emergency work under the authority of P.L. 84-99 as well as under the Disaster Relief Act of 1974.

The U.S. Army Corps of Engineers is available to apply its full river engineering expertise toward reconstruction of any water control facilities required to stabilize the river and to assure the proposed reservoir release capabilities. I wish to thank you for the opportunity to address this important proposed legislation and would be pleased to answer any questions that you may have.

RESPONSES FROM COLONEL STARBIRD

8 May 1986

Chairman Stafford's Questions

Question 1: As I understand it, there is some dispute over the correct size of the 100-year flood in the Lower Colorado River. Could you give us your thoughts on whether 70,000 cubic feet per second is correct, or whether a lower figure is correct?

Answer: The 70,000 cfs figure is approximately equal to the sum of the maximum regulated releases from Hoover Dam (40,000 cfs), Alamo Dam (7,000 cfs) and Painted Rock Dam (22,500 cfs). The Corps of Engineers has not conducted any studies leading to the determination of the 100-year flood in the Lower Colorado River. A comprehensive study is required to determine the actual magnitude of the 100-year flood. This flow is estimated to increase from a value in the range from approximately 40,000 to 50,000 cfs at Davis Dam to something in excess of 70,000 cfs at Yuma, Arizona.

Question 2: As I understand it, local interests want to set a lower figure for the 100-year flood, such as, 50,000 cubic feet per second. What is your reaction to that? What would the effect be of the lower number on the operation of the system?

Answer: At this point in time, there is no basis for selecting any particular flowrate value for establishing the 100-year floodway. By definition, there is only one discharge value for the 100-year flood for any given reach of river. To determine this value, a comprehensive and well coordinated hydrologic engineering study is required. The 100-year flood discharge value, thus determined, would have no effect on the normal operation of the system.

Question 3: The bill creates a task force to advise the Federal agencies in drawing up flood maps. Do you believe the recommendations of the task force should be mandatory? If not, why not?

Answer: The recommendation of the task force should be advisory. The bill assigns responsibility to the Secretary of the Interior for delineation of the Floodway, which we believe is in the Federal interest.

Question 4: What is the maximum volume of water that can be released from Davis Dam?

Answer: The Corps of Engineers has no operational responsibility for Davis Dam. The Bureau of Reclamation who owns and operates Davis Dam has advised us that the maximum outflow through the outlet works, the powerhouse, and the spillway is approximately 280,000 cfs.

Question 5. (For the Bureau and the Corps)1, your testimony seems to indicate that since the completion of the filling of Lake Powell in 1980, flooding below Davis Dam would occur more frequently. Is this true?

Answer: Yes, it is true. During the period between the closure of Glen Canyon Dam in 1963 and Lake Powell's filling in 1979, the annual floodflows in the Colorado River below Hoover Dam were significantly lowered because the unfilled lake behind Glen Canyon Dam in effect acted as a large flood control reservoir. These annual floodflows were less than 18,000 cfs. The 16-year Lake Powell filling period produced an artificially dry period in which there were no major floods below Hoover Dam. This possibly created a false sense of security from floods and may have induced floodplain encroachment. Now, after the filling of Lake Powell, there once again is a high prospect for large releases to be made from Hoover Dam. Essentially, the Lower Colorado River floodflow potential has returned to that which existed prior to 1963.

8 May 1986

Senator Abdnor's Questions

Question 1: Colonel Starbird, has the Corps re-evaluated its operating criteria for flood control storage behind the Colorado River Dams since the 1983 and 1984 flooding?

Answer: Following the 1983 flood, the Corps, in cooperation with the Bureau of Reclamation, reviewed the flood control plan, as is normal practice, but did not make any changes. No detailed re-evaluation of the operating criteria for flood control storage behind the Colorado River Dams has been made since the 1983 and 1984 floods. The Corps, in cooperation with the Bureau of Reclamation, intends to initiate a study in the near future to review the present flood control plan in light of the unprecedented floods of 1983 and 1984, and to determine if any permanent changes to the plan are required.

Question 2: Please explain in some detail, how the Corps determines the flood control operating regulations for Federal reservoirs? In the creation of these regulations, are the comments of states, cities, counties, and other Federal agencies sought?

Answer: The Corps of Engineers develops broad flood control operating criteria during the project's feasibility investigation phase. These include allocation of flood control storage space and determination of the non-damaging downstream channel capacity. After project authorization, the preparation of detailed flood control operation regulations are initiated during the construction phase. These flood control regulations are developed to conform with the objectives and specific provisions of the authorizing legislation and to insure the integrity and safety of the dam. Draft water control plans, including the flood control regulations, are submitted to interested Federal, state and local agencies and watershed associations for comment. After consideration of solicited comments, the final water control plan is prepared.

In the case of Hoover Dam, a US Bureau of Reclamation Project for which the Corps prescribes flood control regulations under Section 7 of the 1944 Flood Control Act, the process described below was followed.

During the development of the present flood control regulations for Hoover Dam, the Corps of Engineers and the Bureau of Reclamation jointly conducted the study. Nine alternative flood control operation plans were formulated to test the significance of various flood control storage space allocations and patterns of flood control releases. Each of the plans were evaluated by considering its impact on flood protection, water conservation, hydropower production, recreation, wildlife enhancement, water quality, and operation and maintenance costs.

Periodic working-level meetings provided the primary coordination between the Corps and the Bureau of Reclamation. These meetings were also attended by representatives of the U.S. Section of the International Boundary Commission, States of Arizona, California, and Nevada, and other Federal agencies. The draft report on the flood control regulations were distributed for comments to Federal, state and local agencies, irrigation districts, and tribal councils in the Lower Colorado River Basin. A news release on the subject plan, distributed to newspapers, radio and television stations throughout the Lower Colorado River Basin, was issued. The news release was aimed at a much broader public, explaining the new flood control plan and soliciting comments. Public meetings were held to receive comments from the interested public.

The final flood control regulations that are in force now were developed using all the results of the above studies and comments.

Question 3: Does the Corps play any role in deciding what the definition of the one-in-one hundred-year flood is for the floodway below Davis Dam? If so, what is the role?

Answer: Under the proposed legislation, the Corps of Engineers would be a member of the proposed task force on the Colorado River Floodway and would extend its expertise to the task force in delineating the one-in-one hundred-year floodway which would take into account the Corps prescribed flood regulations.

Question 4: Please specify what measures were taken by the Corps, along with the Bureau of Reclamation, to warn and provide guidance to floodplain residents and developers with regard to moving into or developing land in the floodway area.

Answer: By Federal statute, the Bureau of Reclamation was assigned responsibility for flood activities along the mainstem of the Lower Colorado River and thus has the responsibility to warn and provide flood hazard guidance to floodplain residents. The Corps of Engineers in conjunction with the Bureau of Reclamation presented floodplain delineation maps during the public review process of the 1977-1982 Review of Flood Control Regulations for Hoover Dam.

Question 5: Which would entail the need for a greater floodway capacity below Davis Dam: operation of the Upper Colorado River Dams for a 40,000 cfs flood release or the one-in-one hundred-year flood release?

Answer: At this time, the magnitude of the one-in-one hunderd-year flood release from Hoover Dam is not known but is estimated to be in the range from 40,000 to 50,000 cfs. Because the drainage area increases with distance downstream from Davis Dam so would the magnitude of the one-in-one hundred-year flood. It is estimated that the one-in-one hundred-year flood flow rate would vary from about 50,000 cfs at Davis Dam to greater than 70,000 cfs at Yuma, Arizona and, hence, the size of the floodway would increase from Davis Dam to the Mexican Border.

Question 6: One witness at the hearing asserted that a 70,000 cfs flood below Davis Dam is closer to a thousand-year event than it is to a hundred-year event. Please comment.

Answer: A frequency analysis of flows below Davis Dam is not available. Hence, the Corps cannot comment on this question at this time. A comprehensive hydrologic analysis of the Lower Colorado River Basin is required before the 100-year frequency floodway can be properly delineated.

STATEMENT OF POSITION
ON SENATE BILL S. 1696,
THE COLORADO RIVER FLOODWAY PROTECTION ACT,
BY THE
SEVEN COLORADO RIVER BASIN STATES

Presented by Vernon E. Valantine, Chief Engineer, Colorado River Board of California, at an April 22, 1986 hearing of the Subcommittee on Water Resources of the Senate Committee on Environment and Public Works

The representatives* of the seven Colorado River Basin states are unanimous in their position in support of Senate Bill S. 1696, the Colorado River Floodway Protection Act, introduced on September 24, 1985 by Senator Barry Goldwater of Arizona. Other Senators joining in cosponsoring S. 1696 included Alan Cranston (California), Jake Garn (Utah), Orrin Hatch (Utah), Chic Hecht (Nevada), Paul Laxalt (Nevada), Alan Simpson (Wyoming), Malcolm Wallop (Wyoming), and Pete Wilson (California). In developing this joint position, we have considered the experiences of high flows on the Colorado River in 1983, 1984, and 1985, the multiple purposes for which the major reservoirs in the Basin were built, and the various documents which make up what is commonly referred to as the "Law of the River".

As the principal water resource in the arid southwest, the Colorado River is of major importance to each of the seven Basin states as well as to Mexico. The dams and reservoirs constructed on the river provide for flood control; river regulation; domestic, municipal, industrial, and agricultural water use; hydroelectric power production; recreational opportunities; and fish and wildlife enhancement.

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*Kathleen Ferris, Director, Arizona Department of Water Resources; Vernon E. Valantine, Chief Engineer, Colorado River Board of California; J. William McDonald, Director, Colorado Water Conservation Board; Jack L. Stonehocker, Director, Colorado River Commission of Nevada; Stephen E. Reynolds, State Engineer, New Mexico; D. Larry Anderson, Director, Utah Division of Water Resources; Warren G. White, State Planning Coordinator, Wyoming.

The Colorado River Basin states unanimously support S. 1696 for an extremely important reason--it will assist in assuring the future availability of water supplies in these states of the arid southwest. The Colorado River Floodway as defined in this legislation is consistent with the effective and balanced management of the river and with the protection of human life, property, and natural resources. These objectives would be achieved through the legislation without detrimental environmental impacts and with better maintenance of the presently-established multiple uses of the river's resources than through other alternatives. Alternatives for greater flood protection through smaller flood control releases would require construction of additional water storage facilities to replace the amount of conservation storage that would be dedicated to flood control space.

Background

The Colorado River reaches peak flow rates in excess of 100,000 cubic feet per second (cfs) in the late spring about once every 3 years, on the average, due to snowmelt runoff. Prior to construction of Hoover Dam, these high flows caused correspondingly high levels of damage to the river banks and riparian lands along the lower Colorado River. Since the completion of Hoover Dam in 1935, the annual snowmelt floods have been controlled, first by Lake Mead and later by the upstream reservoirs as they were constructed.

The maximum flood control release objective for Hoover Dam since its closure has been 40,000 cfs. During the 48-year period from 1935 through 1982, releases from Hoover Dam exceeded 25,000 cfs in only 2 years, and never exceeded 36,000 cfs. From 1935 to 1962, this high degree of control was possible because the low level of downstream consumptive use requirements did not require a large amount of carry-over storage to meet water requirements during an extended dry period. Under those conditions, it was possible to operate Hoover Dam to meet demands and keep the water in storage low enough that the annual snowmelt inflow could be captured without risking use of the maximum controlled release capability of Hoover Dam (73,000 cfs without use of the spillways). After 1963, with the completion of Glen Canyon Dam, and until 1980, all streamflow in excess of downstream consumptive use requirements was retained to fill Lake Powell's vacant storage capacity.

With the filling of Lake Powell in 1980, releases in excess of downstream delivery requirements were made from Hoover Dam but the peak rate reached only about 21,000 cfs until 1983. However, with the currently-filled condition of the reservoirs, and with the consumptive uses of the Basin states approaching the average annual flow (which increases the need to keep the reservoirs nearly full), there is a high probability over the next several years that flood control releases will have to be made in excess of downstream delivery requirements as has occurred during the past few years. This will be done in accordance with the Army Corps of Engineers' Hoover Dam Flood Control Regulations.

During the decades since Hoover Dam was built, residential and recreational structures were built on the riparian lands along the river that had been previously subjected to flooding. Hoover Dam does provide protection from the peak flows that had formerly ravaged the riparian lands. However, when operating the dam to achieve the optimum balance between water conservation, flood control, and power generation under full reservoir conditions, as is now being done, Hoover Dam releases may occasionally have to be made at flow rates higher than those experienced from 1935 through 1982. This fact was brought forth in 1983 when flood control releases had to be made which adversely affected many of the structures that had been improperly located in the floodway.

The Bureau of Reclamation provided information on its expected future Colorado River operations to the public in the mid to late 1970s and explained how such operations would impact developments in the floodway. The term "floodway" refers to the channel of the river and any additional area necessary to convey the design flood. Brochures delineating the floodway were published, and a report was issued in 1976 and given wide public distribution. The report indicated that flows of 40,000 cfs could be anticipated within the next 10 years, with the expected filling of Lake Powell.

Flood Control Regulations

The Secretary of the Interior's operations for flood control are governed by the Army Corps of Engineers' Hoover Dam Flood Control Regulations. The regulations, established pursuant to the Flood Control Act of 1944 (33 U.S.C. sec. 709), have evolved with time. When there were no major Upper Basin storage facilities and when the average annual water supply far exceeded downstream demands, inflexible mandatory criteria reserved 9,500,000 acre-feet of vacant system storage space on April 1 of each year. Now, a more flexible concept enhances all project purposes while providing a degree of flood protection equivalent to that provided under the earlier criteria. The flexible concept arose with the technical ability to forecast runoff and from periodic reviews of the regulations conducted by the Corps of Engineers, in cooperation with the Bureau of Reclamation and the Basin states. The most recent review and update of those regulations occurred between 1978 and 1982.

In this last review, nine alternatives were evaluated, each one of which was set up to favor, in turn, a different one of the authorized Hoover Dam project purposes of flood control and river regulation, water conservation, and power generation; which are listed here in descending order of priority as established by Congress. Frequently, the optimum operating procedure for one purpose is directly opposed to the optimum operating procedure for another purpose. Flood control benefits are maximized by keeping reservoir storage levels low to maximize the amount of empty space available to regulate flood flows. Water supply benefits are maximized by keeping the reservoir storage levels high so as to provide for deliveries during multi-year periods with low runoff. Hydroelectric benefits are maximized by storage somewhat lower than the optimum for water conservation so as to minimize releases in excess of power plant capacity. Also, such a lower storage level avoids the necessity to release water to produce energy on a continuous basis rather than storing it for release at a later time to meet peak power demands.

Hydrologic analyses of the Colorado River system using these alternatives were made jointly by the Corps of Engineers and the Bureau of Reclamation, and the benefits of each, as measured by reduced flood damages, increased availability of water and generation of hydroelectric energy, were compared. In addition, the impacts of these alternatives on fish and wildlife, water quality, and other parameters were analyzed.

The Corps of Engineers' analyses concluded that the alternative that most closely paralleled the then-existing regulations produced the optimum combination of beneficial objectives. After public review and comments on the Corps of Engineers' study, this alternative was adopted to form the Hoover Dam Flood Control Regulations.

The regulations provide for (1) a minimum of 5,350,000 acre-feet of empty reservoir space to be available as of January 1 of each year, (2) forecasts to be made monthly, from January through July, of the maximum inflow to Lake Mead during the period January through July of each year, and (3) flood releases to be made based upon the current amount of empty reservoir space and the forecasted Lake Mead inflow. The required flood control releases are made in stepped amounts, with the next-to-last step being the target maximum rate of 40,000 cfs. This target maximum rate of release has a 50-year history, having been determined for the initial operating plans for Hoover Dam and later by the Corps in its earlier operating studies to be the maximum release rate from Hoover Dam that "...would have caused only minimal damage downstream".

The Lake Mead inflow forecasts are made by the Colorado River Forecasting Service located at the National Weather Service River Forecast Center in Salt Lake City, Utah. A minimum August 1 empty storage space of 1,500,000 acre-feet is required at Lake Mead each year to control rain floods and to initiate the reservoir storage space building to achieve the January 1 space requirement. The forecasts on which the system operations are based are the maximum forecasts that have the probability of not being exceeded 95 percent of the time.

The Bureau of Reclamation must meet the minimum flood control requirements, but beyond that it has some flexibility in the manner in which it operates the river. Specifically, for good cause it can release flows in excess of the minimum required by the regulations, develop flood control storage space greater than required by the regulations, and provide for the required flood control storage space by using available space in the different reservoirs, within constraints set by the regulations, the Operating Criteria promulgated in compliance with Section 602 of P.L. 90-537 and the remainder of the "Law of the River".

1983 Reservoir Releases and Flood Damages

On January 1, 1983, there were 6,600,000 acre-feet of vacant reservoir storage space in the Colorado River system, about 25 percent more than the minimum required by the Flood Control Regulations. A very unusual combination of weather events in 1983 caused a rapid succession of increasing runoff forecasts from about 110 percent of normal (1961-1980) on May 1 to about 200 percent of normal in late June. The unusual weather conditions resulted in a near record runoff of 14.7 million acre-feet for the April-July period and a peak daily inflow into Lake Powell of approximately 128,000 cfs on June 2, 1983. This occurred when the Lake was already full. Lake Powell began spilling on June 8, with a peak release of 91,000 cfs occurring on June 29.

The storage in downstream Lake Mead reached the top of the Hoover Dam spillway gates on July 3, and the first spill occurred since 1941, when releases were made to test the dam's spillways. The nearly doubling of the forecasted runoff between the May 1 and late June forecasts, with the reservoirs full, could have required Hoover Dam flood control releases of up to 65,000 cfs pursuant to the regulations. However, the Bureau of Reclamation was able to manage the reservoir system so as to avoid these very damaging releases. The maximum average monthly release from Hoover Dam was limited to 42,000 cfs. With regard to the frequency of occurrence of such flows, a 1982 Corps of Engineers report shows a Hoover Dam release of 40,000 cfs for a one-month duration as a 1-in-200 to a 1-in-333 year event.

Substantially higher than normal releases from Hoover Dam continued through the remainder of calendar year 1983 and into 1984 in order to evacuate flood control storage space. Releases remained above 27,000 cfs during this period. By comparison, releases from Hoover Dam during a year would normally range from about 5,000 cfs during low water demand periods to about 17,000 cfs during high irrigation months.

The 1983 high release rates from Hoover Dam resulted in flooding of low-lying areas, bank erosion, and the raising of adjacent ground water levels. Areas downstream of Davis Dam experienced the greatest incidences of flood damage and economic loss, most of which occurred to structures and businesses within the floodway. Damage to recreational facilities was widespread, affecting beaches, campsites, boat docks, launch sites, and businesses servicing these activities. Substantial revenue losses were incurred by businesses, and many business owners experienced severe personal hardships due to reduced recreational use along the river during the period of high release rates.

Flood-related damages in 1983 below Davis Dam sustained by Bureau of Reclamation facilities have been estimated to be about $40 million. Damages to the private sector downstream of Davis Dam have been estimated to be in the order of $30 million. Another $10 million of estimated losses were sustained by state, county, and local governments in the lower Colorado River area, bringing the total estimated damages below Davis Dam to roughly $80 million. The revenue losses to businesses along the river due to the sustained high flows are not included in this estimate.

Basin States and Federal Review of River Operations

In July 1983, the Commissioner of the Bureau of Reclamation requested that the Governors of the Basin states each appoint a representative to join with various federal agencies in a review of the 1983 river operations to formulate possible modifications that could improve river operations. These representatives have joined in making this statement.

We reviewed the 1983 runoff experience and the Bureau of Reclamation's studies of the 1983 runoff; participated in oversight hearings conducted by the House Committees on Interior and Insular Affairs and on Science and Technology regarding the Bureau of Reclamation's management of the 1983 runoff; considered various proposals to increase the amount of vacant flood control space in the reservoirs and to reduce the Hoover Dam maximum release objective to 35,000 cfs; and reviewed the Bureau of Reclamation's plans for future years' operations. After consideration of all factors, we, the representatives of the seven Colorado River Basin states, prepared two statements of position, dated December 7, 1983 and August 24, 1984, on Colorado River management issues, which were presented to the Commissioner of Reclamation.

Several issues regarding river management and operations were covered in those statements. With respect to flood control operations, the state representatives considered that the technical changes made in data collection and in procedures for making the maximum forecasts of runoff and inflows to Lakes Powell and Mead (which increased the margin for error) offered sufficient levels of flood protection considering the fact that the 1983 high flows were a rare event. We concluded that it would not be desirable to reduce the floodway capacity and that there was no need to increase the vacant flood control storage space. We also concluded that the 1982 Hoover Dam Flood Control Regulations are based on the most acceptable mix of the purposes of flood control, water conservation, and power generation, and should continue to govern future operations. We further recommended that a floodway capable of containing a flood control release of 40,000 cfs from Hoover Dam should be maintained.

Periodic review of river operations and annual plans of operations by the Governor's representatives of the respective Basin states continued into 1984 and 1985 to provide input to the Bureau with regard to the management of the sustained high runoff that has been experienced since 1983 under full reservoir conditions. These two years of additional experience have confirmed our initial conclusions regarding the need to maintain a 40,000 cfs floodway.

Proposed Colorado River Floodway Protection Act

On March 7, 1984, Congressmen Richard Cheney and Morris Udall introduced House Bill H.R. 5055, which would establish a Colorado River Floodway below Hoover Dam, and would severely limit federal expenditures within the floodway. The Colorado River Board of California, representing one of the three states that would be directly affected by terms of the proposed legislation, carefully reviewed the bill. Based on comments by the California cities, communities, and counties along the Colorado River and California's Colorado River water and power users, California's representative developed modifications to the proposed legislation that would meet the concerns of those entities, while maintaining the purpose of the bill.

The Colorado River Basin state representatives considered the amendments proposed by California and reached agreement on a further draft of the legislation during a meeting on January 9, 1985, in San Diego, California. All of the representatives were concerned that the pressures for continuing development along the lower Colorado River could result in further encroachments into the Colorado River floodway, thereby creating demands for further flood protection by reserving more flood control storage space in the upstream reservoirs at the expense of reducing the storage space available for conservation of river flows. They concluded that the proposed bill would provide a tool to help the states and local governmental agencies guide future developments along the river so that they would not encroach upon the floodway.

Accordingly, the Colorado River Basin states representatives declared their support for the enactment of the proposed legislation. The representatives from the seven states unanimously passed and signed a "Resolution Supporting Enactment of the Colorado River Floodway Protection Act", as redrafted during the January 9 meeting. The redraft of the legislation developed by the Colorado River Basin states formed the basis for House Bill H.R. 1246 which was introduced by Congressmen Richard Cheney and George Miller on February 25, 1985 and later approved by the House of Representatives on September 24, 1985. This is the same day that S. 1696 was introduced in the Senate.

Comparison of S. 1696 (Goldwater) with S. 498 (DeConcini)

On February 22, 1985, Senator Dennis DeConcini introduced Senate Bill S. 498, which creates a Colorado River Floodway Task Force to study and make recommendations relative to the problems brought about by the high flows experienced in the lower Colorado River area in 1983. The state representatives have reviewed S. 498, together with S. 1696, and believe that S. 1696 incorporates the major features of DeConcini's bill that the state representatives consider essential for timely development and implementation of a Colorado River floodway.

The two bills address, although in different ways, the following matters: the size and design criteria of the floodway; the need for additional floodway management at local, state and federal levels; the acceptance of recreation facilities and fish and wildlife enhancement within the floodway; and consideration of relocations and land transfers for those living within the flood plain. Other related aspects of the two bills deal with limiting future construction and federal expenditures within the floodway, some degree of compensation for damages sustained because of the 1983 high flows, and emergency plans and assistance for emergency actions.

Based on our review, we believe that the principal thrust of S. 1696 is the establishment of a Colorado River floodway while the Task Force that would be authorized by S. 498 emphasizes the question of compensation for those affected by the 1983 high flows. S. 498 would defer any future floodway action pending the deliberations and subsequent recommendations of the proposed Task Force. S. 1696 would provide for more comprehensive and timely accomplishments relative to flood protection and river management than S. 498. We, therefore, recommend that the Senate enact S. 1696 at this time.

Technical Comments on Selected Sections of Senate Bill S. 1696

Sec. 2(b). PURPOSE. In this section, the bill sets forth its purpose: to establish the Colorado River Floodway so as to provide benefits to river users and to minimize loss of human life, protect health and safety, and minimize damage to property and natural resources by restricting future federal expenditures which have the effect of encouraging development within the floodway. This purpose is similar to that adopted by Congress in establishing the Coastal Barrier Resources Act of 1982, Public Law 97-348. The riparian lands along the Colorado River experienced damages to structures located thereon from the controlled releases of flood waters in 1983. The federal government should not encourage development on lands subject to inundation by such controlled releases through federal expenditures related to those developments, and this goal is stated in Section 2(b).

Sec. 4(b). This section describes the duties of the Colorado River Floodway Task Force established in Section 4(a), which is to prepare recommendations concerning the Colorado River Floodway. The Task Force, by including representatives of the communities, districts, counties, and Indian Reservations along the river, as well as federal and state agencies, brings together those organizations that would be most affected by the recommendations on how the lands within the floodway could be best managed.

Sec. 5(b)(1). Since the flows carried by the Colorado River below Davis Dam include both the releases from Davis Dam and any inflow from the ephemeral tributaries entering the mainstream below the Dam, a floodway, to be effective, must have the capacity to carry both the controlled releases and such tributary inflows. In this section, the Secretary is directed to complete, in consultation with the Task Force, the seven Basin states and other interested parties, a study of these tributrary inflows and to determine the boundaries of the Colorado River Floodway to accommodate both controlled releases and tributary inflows.

The standard level of protection that has been adopted in the administration of the National Flood Insurance Act is the one-in-one-hundred-year frequency flood. As mentioned earlier in this statement, the Corps of Engineers had determined that 40,000 cfs is the maximum release rate that historically would have inflicted a minimum level of downstream damages. Consequently, the boundaries of the Colorado River Floodway should be capable of accommodating a one-in-one-hundred-year river flow or a 40,000 cfs flow, whichever is greater, from Davis Dam to the Southerly International Boundary between the United States and the Republic of Mexico.

It is the position of the Basin states that the Secretary's analysis of the one-in-one-hundred-year river flow should represent a realistic probability of such flow occurring in any reach of the river at a given time, and should not arbitrarily assume that flood inflows from all tributaries occur simultaneously. It is the nature of weather events along the lower Colorado River, a desert region, that most rain storms are intense, localized thunder showers that would produce floods from only a few tributaries at a time, and the Secretary's study should reflect this. The provision of Section 5(b)(1)(ii) in S. 1696 satisfactorily addresses these issues concerning the accommodation of the combined controlled releases and tributary inflow within the floodway.

Sec. 6. This section provides the restriction on future federal expenditures within the floodway necessary to accomplish the purpose of the bill as set forth in Sec. 2(b). Any individual who wishes to risk his personal funds by constructing a development within the floodway would not be prohibited from doing so by this bill. However, the bill prohibits any such potential developer from participating in federal programs that may aid his development and puts him on notice that public funds will not be available to compensate him for his losses in the event of inundation of his land.

Sec. 7. There are several functions and uses of the floodway that serve the public interest, and this section recognizes those functions and uses by providing limited exceptions to the prohibition of federal expenditures. These exceptions are enumerated as river control structures and related works, public roads, military activities, fish and wildlife enhancement projects, navigation aids, emergency action assistance, public health assistance, public recreational developments, and farming activities.

Conclusion

We, the representatives of the Governors of the seven Colorado River Basin states, after carefully considering S. 1696, believe that it will assist in the future operation of the Colorado River dams and reservoirs so as to maximize their benefits in fulfilling the purposes established by Congress. We recommend the passage of this bill.

STATE OF CALIFORNIA—THE RESOURCES AGENCY
GEORGE DEUKMEJIAN, Governor

COLORADO RIVER BOARD OF CALIFORNIA
107 SOUTH BROADWAY, ROOM 8103
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May 13, 1986

The Honorable James Abdnor, Chairman
Subcommittee on Water Resources
Committee on Environment and Public Works
Senate Hart Office Building, Room 508
Washington, D.C. 20510

Dear Chairman Abdnor:

It was indeed a pleasure to appear before the Subcommittee on Water Resources and present the views of the Colorado River Basin states on the Colorado River Floodway Protection Act, S. 1696. As a follow up to the hearing, you submitted, by letter dated April 23, 1986, three questions pertaining to S. 1696 for which you would like our response. I am pleased to submit our reply to these questions. In addition, I am providing comments on one of the questions you directed to the federal witnesses and on the testimony of Anthony Drennan, Chairman of the Colorado River Indian Tribes.

1. Do you support the technical changes to the bill suggested by FEMA?

   One of the suggested technical changes calls for extending the period of availability for flood insurance for new construction or substantial improvements of structures located within the Colorado River Floodway from 6 months after the bill has been enacted to 18 months after the Floodway boundaries have been established. Considering that under Section 5(b)(1), the Secretary has 18 months in which to define the boundaries of the Floodway, this change would allow a total of 3 years after enactment of the Act for development to continue within the flood plain and still maintain eligibility for insurance. We do not favor extending this period beyond the 6 months contained in the proposed legislation, fully recognizing that this may require the establishment of temporary floodway boundaries subject to change at a later date. Extending this period would only act to encourage development in the flood plain, when it is the clear intent of the legislation to prevent any further development that would be subject to future threat of flood damage.

   We have no objection to the other technical changes suggested by FEMA.

2. The task force proposed in S. 1696 has over 40 members. Could you please comment on the workability of such a large task force?

   Many of the agencies represented on the task force were designated by the local Congressional representatives to assure a full spectrum of viewpoints. We feel that, through the establishment of subcommittees to deal with the specific issues enumerated in the proposed legislation, the task force can carry out its charge in an efficient and effective manner.

3. What do you believe the one-in-one hundred year flow to be below Davis Dam?

   The proposed legislation defines the specific boundaries of the floodway as that which "can accommodate either a one-in-one-hundred-year river flow consisting of controlled releases and tributary inflow, or a flow of forty thousand cubic feet per second (cfs), whichever is greater". The long-standing target maximum controlled release from Hoover Dam and Davis Dam is 40,000 cubic feet per second. The one-in-one-hundred-year frequency flood flow is the standard level of protection of the National Flood Insurance Act. The one-in-one-hundred-year river flow below Davis Dam, consisting of controlled releases and tributary inflow, will be determined upon completion of the study of tributary floodflows downstream of Davis Dam to be carried out under Section 5(b)(1)(i) of the Act. All seven Basin states and the federal agencies involved in river operations support the definition of the floodway boundaries in the Act.

   A floodway, as specified in S. 1696, is consistent with the long-standing flood control objectives of the Hoover Dam Flood Control Regulations. These regulations have been reviewed periodically and have consistently been found to provide for the best balance of beneficial uses in keeping with the Congressionally authorized purposes of the river's reservoirs.

During the April 22 hearing you directed several questions to the federal witnesses. One of the questions pertained to the impacts on water conservation and flood control from increasing the reservoir storage space to be reserved for flood control purposes. While the technical aspects of the relationship between water conservation and flood control will undoubtedly be addressed by the federal agencies, I would like to offer my comments on the water conservation aspects.

The dependable water yield of the Colorado River, which is much less than the amount of water apportioned to the seven Colorado River Basin states plus the U.S.-Mexico Water Treaty delivery obligation, is obtained by storing water during high flow years, and releasing the stored water to meet needs during extended dry periods that are typical of arid basins such as that of the Colorado River. If the amount of reservoir storage space used for conserving the high flows is reduced, the dependable yield would also be decreased.

There have been proposals made to reduce the magnitude of the long-standing target maximum flood control release objective of 40,000 cubic feet per second from Hoover and Davis Dams. However, any such reductions in the maximum target flood control release objective would require much greater reservoir storage space to be reserved for flood control, thereby decreasing storage space for conserving flood flows in an already water-short basin. Most of the proposals would entail a minimum of 2,000,000 acre-feet of additional reserved flood control space. That amount of stored water would be sufficient to supply a population of about 500,000 people during a 20-year dry period, such as has occurred in the Basin in the past. Arizona, the Basin state that would probably first experience shortages during an extended dry period, has no alternative water supplies. Accordingly, it would be necessary to replace the lost conservation storage capacity by constructing other upstream water storage projects.

We would also like to offer a few comments on the testimony presented by Anthony Drennan, Sr., Chairman of the Colorado River Indian Tribes, at the hearing. Mr. Drennan's written statement includes the sentence: "Specifically we oppose the restrictions on leasing of Indian lands imposed by Section 13 of S. 1696." The proposed legislation does not prohibit leasing of Indian lands, but it is intended to assure that the leases are consistent with the purposes of the Act as determined by the Secretary.

Mr. Drennan's statement also includes the sentence: "The provisions of Section 6 of S. 1696 would seem to restrict the expenditure of all Bureau of Indian Affairs and Indian Health Service funds within the flood plain except those exempted by the general terms of Section 7." (emphasis added) There are two general points I would like to make with regard to the above sentence. First, earlier in Mr. Drennan's statement, he refers to the Tribes' program for economic development of reservation lands, with recreation development being part of that program. The exemptions to federal expenditures in the floodway listed in Section 7 include both compatible recreational developments and agricultural uses (the major part of the Reservations's economy), and were contemplated to cover such developments on Reservation lands. The bill is not intended to inhibit development on Reservation lands.

The second point is that the restrictions on federal expenditures that would be imposed by S. 1696 would apply only to lands within the floodway, not the flood plain. The floodway would be carefully delineated to be only those lands along the Colorado River that would be subject to a specific level of river flow. These lands are only a small fraction of the total Colorado River flood plain which includes much of the valley lands along the lower Colorado River. With the Task Force to include a representative of each Indian Reservation, it appears that the tribe would be able to bring forth any special concerns and considerations involved in delineating the floodway through Reservation lands.

We appreciate the opportunity to provide our comments on this important legislation. If we or the Colorado River Basin states can be of any further assistance, please let us know.

Sincerely,

Vernon E. Valantine

Vernon E. Valantine
Chief Engineer

STATEMENT OF GERALD R. ZIMMERMAN, EXECUTIVE DIRECTOR
UPPER COLORADO RIVER COMMISSION
before the
SUBCOMMITTEE ON WATER RESOURCES
of the
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

April 22, 1986

My name is Gerald R. Zimmerman. I am the Executive Director of the Upper Colorado River Commission in Salt Lake City, Utah.

The Upper Colorado River Commission is the administrative agency created by the Upper Colorado River Basin Compact of 1948. The Commission represents the States of Colorado, New Mexico, Utah, and Wyoming in matters relating to the development, utilization, and conservation of the water resources of the Upper Colorado River Basin. Because of its duty to administer the Upper Colorado River Basin Compact, the Commission has a vital interest in any legislation that may have an impact on the operations of the reservoirs in the Colorado River System.

I am appearing before you today on behalf of the Upper Colorado River Commission and the Governors' representatives of the Upper Division States. Mr. Vernon E. Valantine's testimony on behalf of the seven Colorado River Basin States has set forth the need and the justification for the enactment of legislation contained in S. 1696, the Colorado River Floodway Protection Act. I do not want to repeat that testimony; however, I do want to emphasize that the Upper Colorado River Commission and the Governors' representatives of the Upper Division States fully support the expeditious enactment of S. 1696.

Enactment of S. 1696 will: (1) establish a Task Force composed of representatives from the States, Indian Tribes, local jurisdictions, and the Federal government to advise the Secretary of the Department of the Interior and Congress on establishment of a floodway and management of existing and future development within the floodway below Davis Dam; (2) restrict future Federal expenditures and financial assistance in the declared floodway and thereby minimize the damage to property and natural resources within the floodway, protect public health and safety, and reduce the potential for loss of human life; and (3) establish a 100-year floodway and thereby enable Federal, State, Indian Tribal, and local entities to manage the Colorado River System for the multiple purposes that have been established through various congressional acts.

Mr. Chairman and members of the Committee, on behalf of the Upper Colorado River Commission, I want to thank you for granting us the opportunity to appear before you in support of the enactment of S. 1696.

May 22, 1986

James Abdnor
Subcommittee on Water Resources
Committee on Environment and Public Works
Dirksen Senate Office Bldg., Room SD-410
Washington, DC 20510

RE: S. 1696 and S. 498, Colorado River Floodway Bill
and DeConcini Substitute Amendment

Dear Senator Abdnor:

Thank you for this opportunity to submit additional testimony on the above bills.

First, in answer to your specific questions we submit the following:

1. Do you support the technical changes to the bill suggested by FEMA?

   A. We have no objection to these changes.

2. How many acres of land do the Colorado River Indian Tribes own in the Proposed floodway? How is the Tribes' land in the floodway presently used?

   A. About one-half of the 27,000 acres of the Colorado River Indian Reservacion lies within the "flood plain" of the Colorado River. This is the area below the mesas where the river meandered prior to the construction of the dams. Within this area the Corps of Engineers has constructed a levee system. Should releases from Parker Dam exceed 50,000 cubic feet per second, from 7,200 to 29,000 acres on the Reservation would be inundated. We do not know how many acres would be within the proposed "floodway" since it has not been defined.

3. Do you think that S. 1696, if enacted, would strongly discourage further development in the floodway?

   A. It probably will. Also, the more deliberate approach of the DeConcini substitute would achieve similar results while giving full effect to all of the priorities of prior legislation, including flood control.

4. The task force proposed in S. 1696 has over 40 members. Could you please comment on the workability of such a large task force?

   A. I think it would be a mistake to reduce the number on the task force. The main problem with S. 1696 is that it jumps to a conclusion and then sets up a task force of those affected to implement the conclusion. The very least that should be done is to have full input from a task force comprising representation of all of the affected groups.

The attached statement gives our analysis of the physical situation on our Reservation and makes certain recommendations. As the answer to question number 2 above indicates, what the "floodway" is defined to be on this stretch of the river is critical. If reasonable it would affect a minimum amount of Reservation land. If not, it could severely restrict development on up to 29,000 acres of land.

We believe that the approach suggested by the DeConcini substitute is better suited to giving full effect to all of the priorities established in the legislation authorizing the dams, including flood control. Our suggestion that the releases from the dams be coordinated to allow for temporary inflows from tributaries would also give effect to the flood control purpose of the dams.

Thank you again for the opportunity to submit additional testimony.

Very truly yours,

COLORADO RIVER INDIAN TRIBES

Anthony Drennan Sr.

Anthony Drennan, Sr.
Chairman, Tribal Council

Attachments

ADDITIONAL TESTIMONY SUBMITTED BY ANTHONY DRENNAN, SR.
COLORADO RIVER INDIAN TRIBES TO THE WATER RESOURCES
SUB-COMMITTEE OF THE SENATE COMMITTEE ON ENVIRONMENT
AND PUBLIC WORKS ON S.1696 AND THE DECONCINI SUBSTITUTE
AMENDMENT - May 22, 1986

THE COLORADO RIVER FLOODWAY PROTECTION ACT

A Bill, H.R. 1246, entitled the "Colorado River Floodway Protection Act" has been passed by the House of Representatives and is currently being considered by the United States Senate. If this Bill becomes law, a federally declared floodway for the Colorado River below Davis Dam will be established. It is recognized that the Act's primary purpose is to discourage development in the floodway, and not to regulate the operation of the river.

Some of the purposes of the Act are to:

1. "establish the Colorado River Floodway so as to provide benefits to river users and to minimize the loss of human life, protect health and safety, and minimize damage to property and natural resources by restricting future Federal expenditures and financial assistance, except public health funds, which have the effect of encouraging development within the Colorado River Floodway; and
2. establish a task Force to advise the Secretary of the Interior and Congress on the establishment of the Floodway and on managing existing and future development within the Floodway, including the appropriateness of compensation in specified cases of extraordinary hardship."

Under the Act a comprehensive study of the tributary floodflows downstream of Davis Dam will be performed. In addition, the specific boundaries of the Colorado River Floodway will be defined so that the floodway can accommodate either a one-in-one[1] hundred year river flow consisting of both controlled reservoir releases plus uncontrolled tributary inflow, or a flow of forty thousand cubic feet per second (cfs), whichever is greater.

Results of the study will define the limits of areas that potentially could be inundated from the 100-year flood. These limits will then define a certain floodway in the Colorado River.

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[1] A one-in-one hundred year river flow is defined as a flow having a 1% chance of occurring in any one year. Sometimes called the 100-year flood.

EXISTING DATE AND STUDIES

The operating criteria for Hoover Dam is such that under certain conditions and reservoir storage and Colorado River inflow, the Bureau of Reclamation (USBR) will release the excess (or flood) waters through the reservoir system. In addition, during periods of high flow on the Bill Williams River, the Corps of Engineers (COE) will increase releases through Alamo Dam which then flow into the Colorado River above Parker Dam. Eventually the impacts of these excess releases are felt below Parker Dam.

Prior to the Completion of Hoover Dam in 1935, peak flows at Black Canyon, the site of Hoover Dam, were estimated to be as high as 300,000 cfs. Historic and modern records show that peak flows at Black Canyon have probably exceeded 100,000 cfs 31 times between 1878 and 1976 and exceeded 200,000 cfs three times during the same period. Since the completion of Hoover Dam, these large floods have been virtually eliminated. In 1983, abnormally high flow into Lake Mead combined with substantial reservoir storage required flood releases from Hoover Dam. The impacts from these flood releases were felt along the Colorado River from Davis Dam to the Gulf of California.

Headgate Rock Dam (170.0 miles downstream of Hoover Dam and 14.4 miles downstream of Hoover Dam and 58.6 miles downstream of Parker Dam), both river regulatory structures were effectively operated to keep water surface elevations immediately upstream of these dams relatively constant for all of these flood conditions. This operation minimized the flood damage immediately upstream of these dams.

The Federal Government, through the USBR and the COE has studied the Colorado River from its headwaters downstream to its point of release into Mexico at the Southerly International Boundary. The USBR/COE have studied historical storm runoff and river flow data, performed frequency analyses, and has studied the river's operation to estimate flooding potential. Based on historic data, the USBR/COE determined the probability of flows occurring in any given year.

In 1984 the Soil Conservation Service (SCS) performed an independent tributary flood study entitled "Working Paper No. 9 - Flooding, Colorado River Indian Reservation, Cooperative River Basin Study." Tributaries or washes which extended into the CRIT Reservation boundaries were studied. The Bouse and Tyson Washes, as well as numerous other minor washes, all of which flow into the Colorado River, were analyzed in the report. Flood hydrographs were generated to determine probable flows for both Bouse and Tyson washes resulting from one-in-2,5,10,25,50 and 100 year storm runoff flows. The study also evaluated Bouse and Tyson Wash inflow flood protection alternatives.

The SCS estimates that one in 100 year peak runoff flow for Bouse Wash would be 57,000 cfs, and for Tyson Wash it would be 37,000 cfs. The SCS also estimated numerous inflows from contributing washes, however, these inflows are insignificant when compared to Bouse and Tyson Washes. Although Osborne Wash could potentially be the same magnitude as the Bouse Wash inflow, the SCS made no estimates of this Wash's flow.

Although the peak flow from any of these washes will begin to decrease within several hours, those peak flows into the Colorado River could raise water levels along the river for short periods of time.

Because of the river's channel configuration, the river will eventually dissipate these peak flows. However, the initial impact of the peak flow will raise water levels along the floodway.

RECENT FLOODING AND DAMAGE

Prior to 1935 few, if any, structures were located in the 40,000 cfs Colorado River flood plain. USBR and COE operating criteria defines a "target maximum" release has been 40,000 cfs. This "target maximum" release is defined by the USBR as one that is not exceeded unless absolutely necessary. This section discusses recent, flooding and its damage. The only flooding that has occurred since the completion of Hoover Dam was in 1983, 1984 and 1985.

Prior to the 1983 Parker Dam maximum release of 40,300 cfs the river channel configuration was such that a release of 40,000 cfs probably would have inundated some of the subdivisions currently located along the Colorado River between Parker Dam and Palo Verde Diversion Dam. However, the gradually increasing releases during 1983 caused the river channel to scour significantly, thereby increasing its capacity while the water surface level remained constant. Thus, when the maximum discharge of 40,300 cfs was attained, the damage impacts were below projections. A more severe condition would have resulted had the river system been operated differently (e.g. an abrupt discharge of 40,300 cfs from Parker Dam).

River channel profiles collected in 1985 indicated that the channel has not changed appreciably since 1983. Releases for this period have averaged 20,000-30,000 cfs. Given time, the channel could eventually restore itself back to conditions similar to the pre-1983 conditions.

The 1985 data along with 1983 flooding information is evidence that, as long as releases significant enough to maintain the current scour depth are assured, 40,000 cfs appears to be the maximum flow limit before any major damage will result to riverfront property.

FUTURE FLOOD POTENTIAL

To assure minimum future flood damage, close monitoring of tributary inflows should be made. If Parker Dam releases are made irrespective of downstream tributary inflow a combination of conditions could occur whereby a wage could move through the river system. A worse case scenario might be; 40,000 cfs is released from Parker Dam, and 100-year flood inflows to the river from the Bouse and Tyson washes peak at the same time. The combined peak flow of over 94,000 cfs from the Bouse and Tyson washes plus the 40,000 cfs released from Parker Dam could result in 134,000 cfs below Tyson Wash.

A release of this magnitude would inundate a large portion of the strip below the Bouse Wash inlet. Although this is a statistically unlikely possibility, additive peaks can occur to a lesser degree.

Bouse Wash, unlike Tyson Wash, presently has no defined river inlet. Any runoff from Bouse Wash discharges from a point north of the Plomosa Mountains and spreads over a vast currently undeveloped portion of CRIT land. Future development plans will require routing and diverting these flows to a concentrated river release point.

The USBR has constructed a levee system on the Arizona side of the river which extends from approximately eight miles downstream of Headgate Dam to the Palo Verde Diversion Dam. The levee is designed to contain a 50,000 cfs river flow. Should a release of 50,000 cfs or greater occur, from 7,200 to 29,000 acres between the levee and a highline on the California side of the river would be inundated.

River Flows in excess of 40,000 cfs could severely damage and render land within those flood limits useless.

PROPOSED MODIFICATIONS TO S. 1696

The Colorado River Indian Tribes (CRIT) prefer the DeConcini substitute amendment. However, if that is not possible, the following changes to S. 1696 are suggested:

1) The Bill should be modified to define the one-in-one hundred year flood on the Colorado River from Parker Dam to Tyson Wash as 40,000 cfs. This definition would enable the task force to adequately define a Colorado River floodway.
2) The Bill should require regulation of releases with an occurrence interval of less than or equal to a one-in-one-hundred year flood event from Parker Dam such that 40,000 cfs will not be exceeded below the Tyson Wash inlet. It is felt that this 40,000 cfs restriction is realistic and could be accomplished with proper monitoring of tributary inflows.
3) The Bill should contain provisions to allow affected Indian Tribes access to Federal funding through the PL-93-638 process to participate in all related studies and flood protection improvements.
4) The Bill should require alternative tributary inflow reduction/retention structures to be studied and constructed where feasible at major inflow locations to control flood released into the Colorado River. The Bill should also require the Secretary of the Interior to complete the study and report to Congress within two years. The study and construction could be funded under the authority of the Colorado River Front Work and Levee System (CRFWLS).
5) To prevent further erosion and resulting loss of valuable land, the Bill should require that the USBR complete bank stabilization of the River on the CRIT Reservation by 1987. This process could be funded under the authority of the CRFWLS.
6) The Bill should require the USBR to maintain a river channel so that future high flows would not exceed water surface elevations experienced in 1983.
7) Exempt Indian lands from the prohibition against leasing of Federal lands. There is no similar prohibition against leasing private lands.

8) Exempt all Indian lands from the operation of this Bill until the Secretary of the Interior, has made a thorough study of the effects of the Bill on all Federal programs affecting Indian reservations and has provided suggested amendments to obviate the effects of the Bill on all programs not intended to be affected.

MOHAVE COUNTY BOARD OF SUPERVISORS

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STATEMENT BY SUPERVISOR JACK ROSE
HEARING ON THE COLORADO RIVER FLOODWAY
LEGISLATION, S. 1696
SENATE ENVIRONMENT & PUBLIC WORKS COMMITTEE
APRIL 22, 1986

Senators:

I am here today on behalf of the Mohave County Board of Supervisors to testify in favor of the Colorado River Floodway Protection Act, and the DeConcini Amendments. Mohave County fully supports the passage of this legislation. We believe in reasonable flood control measures and feel that S. 1696 would begin to solve some of the problems left over from the 1983 Colorado River flood.

Since 1983 Mohave County has maintained a virtual moratorium on development adjacent to the Colorado River. The reason for this is the lack of a definitive one hundred year level. As far as Mohave County is concerned, the whole issue revolves around the one hundred year flood level.

During the June 1983 flooding the river peaked at almost forty thousand cubic feet per second (cfs). This caused some very minor property damage along the Colorado River. The only serious flooding that occurred in Mohave County was in a subdivision approximately three miles inland of the river. This occurred because of a faulty spillway in the Topock area of the

Havasu National Wildlife Refuge. Since then this problem has been eliminated by the Bureau of Reclamation. After the flood FEMA and the Bureau decided to arbitrarily set the one hundred year flood flow at 70,000 cfs. This figure was arrived at by figuring a maximum flow of 40,000 cfs from Davis Dam, and by adding in three simultaneous one hundred year storms in three areas along the Colorado River. The chance that all of these one hundred year events could occur at one time is astronomically low. Our data suggests that 70,000 cfs would be a one in one thousand year occurrence. The United States House of Representatives agrees with this assessment. On page eleven of Report 99-261 it clearly states that "It is the Committee's judgment that the Secretary's analysis of the one in one hundred year river flow ... should not arbitrarily assume that flood inflows from all tributaries occur simultaneously. It is the nature of weather events along the Lower Colorado River, a desert region, that most rain storms are intense, localized thunder showers that would produce floods from only a few tributaries at a time, and the Secretary's study should reflect this."

Mohave County believes that this issue needs to be resolved. For the past three years development adjacent to the Colorado River has been put on hold because of this problem. Mohave County does not want to allow development within the floodway, so it is becoming increasingly urgent to define the floodway so that the county can allow appropriate development beside the floodway.

This legislation would result in a final determination of this issue. We feel that an objective study will yield a one hundred year flood flow of forty to fifty thousand cubic feet per second.

Although Mohave County's main concern is the determination of the one hundred year flood flow, there are certain provisions in S. 1696 that I am concerned about. The first concern is with the size of the task force. The legislation calls for a forty-six member task force. I believe that this is much too large a group to make any real progress: the meetings would be interminable and would accomplish little. In fact, it is possible that a group of this size could not reach a final consensus and the result would be stalemate. Or worse, the task force, rather than deadlock might come up with a "political" floodway. For example, since Needles, California wants a 40,000 cfs and Mohave County can live with a 50,000 cfs, the task force, in order to establish majority support, could draw the floodway on one side of the river at 50,000 cfs, and on the other side at 40,000 cfs. Naturally this does not make any sense, but it could be the result if there was a serious deadlock. I would propose that the size of the task force be reduced to fifteen members. I feel that this would be a much more manageable size, but would still allow all major interests to be included. I would suggest the following makeup:

1) One representative from each of the States of California, Nevada and Arizona;
2) The Secretary of the Interior;
3) The Bureau of Reclamation;
4) The Federal Emergency Management Agency;
5) The Army Corps of Engineers;
6) The Colorado River Indian Reservation; and
7) The seven counties in which the floodway is located.

These fifteen members would represent all major interests. But, should the committee decide that it is important to have input from the other thirty-one proposed members of the task force, I would suggest that they be made advisory members without a formal vote. It has been suggested that the full forty-six member task force elect a fifteen member steering committee. I would strongly advise against this. The non-federal representatives would vote together and would keep all federal representatives off the steering committee.

The second concern is the implementation of the task force report. The language is vague enough to allow the Secretary of the Interior to ignore the task force report. I believe that language needs to be inserted that would make it clear that the Congress wants the Secretary to implement the conclusions of the task force if at all possible. If the committee is not comfortable with that type of amendment, perhaps it would be helpful to require the Secretary to explain in writing why he cannot accept any particular portion of the report.

When the Cheney legislation was originally introduced, Mohave County was vehemently opposed to it. Since then the legislation has been amended enough to get the support of the Mohave County Board of Supervisors. But let me make it clear that we prefer the DeConcini Amendment.

I believe that it is important that the federal government, the state governments and the counties work together to solve this problem. There are many diverse interests that need to be considered. The people downstream in Souther California and Central Arizona that need high water flows during the summer months should have their concerns alleviated; the power users that need large amounts of electricity during the summer months should have their concerns looked at closely; and the counties that are adjacent to the floodway need to work with the federal government in order to ensure safe, responsible development. That is what we want in Mohave County and we are willing to work with you in order to achieve this.

NATIONAL WILDLIFE FEDERATION
1412 Sixteenth Street, N.W., Washington, D.C. 20036-2266 (202) 797-6800

STATEMENT OF EDWARD R. OSANN
DIRECTOR, WATER RESOURCES PROGRAM
NATIONAL WILDLIFE FEDERATION
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
on S. 1696, THE COLORADO RIVER FLOODWAY PROTECTION ACT

April 22, 1986

My name is Edward R. Osann. I am the Director of the Water Resources Program of the National Wildlife Federation. The Federation, with over 4.5 million members and supporters nationwide, is America's largest conservation organization, now entering our 51st year of conservation advocacy and education. During the past 15 years alone, our membership has adopted more than 60 resolutions on various aspects of water resource conservation and development. The Federation and its affiliates have a history of working with state officials and Federal construction agencies to resolve differences over water policies and projects, and to develop the most economical and environmentally sound methods for reducing flood damages on the nation's waterways.

The National Wildlife Federation supports S. 1696.

The Federation strongly supports the implementation of non-structural measures for flood damage reduction. Restrictions on floodplain development are inexpensive and benefit the environment by creating a buffer zone between pollutants introduced in urban and agricultural watersheds and the river.

S. 1696 would discourage floodplain development along the lower Colorado River through a prohibition of Federal expenditures, yet it would not prohibit such development. Those who choose to construct new buildings on the floodplain will be liable for their actions; the Federal taxpayer would no longer bear the burden of such decisions.

The denial of Federal subsidies to floodplain development in the lower Colorado River floodplain below Davis Dam makes sense. High flows and flooding on the lower Colorado in the future are inevitable; thus further floodplain development should be avoided. The denial of subsidies to development will save money for the Treasury directly, by cutting expenditures, and indirectly by reducing the demand for disaster assistance and flood insurance payments.

The Act's purposes should include natural resource conservation.

An undeveloped floodplain is a valuable natural resource. Not only does the floodplain buffer upland development from flood flows; it supports unique vegetative communities, called riparian communities. The once extensive cottonwood, willow, and mesquite riparian woodlands that adorned rivers in the Sonoran desert support one of the highest wildlife densities of any habitat type in North America. In the Southwest's hottest areas, these communities are essential to the survival and reproduction of songbirds, such as the Arizona Bell's vireo and Sonoran warbler. Raptors such as black hawks, zone-tailed hawks, ospreys, and bald eagles fish from and nest in riparian trees. Game animals such as javalina and mule deer use riparian corridors as migration routes. Many species of reptiles and amphibians, including the canyon tree frog, Sonoran mud turtle, and Arizona alligator lizard are completely dependent on this habitat type.

Riparian vegetation serves many purposes. Trees provide organic matter that fuels the food chain and feeds fish. Floodplain vegetation filters and assimilates phosphorus, nitrogen, heavy metals, bacteria, and pesticides from upland cities and farms, thus protecting river water quality. The roots of trees, shrubs, and grasses on floodplains bind soil, thereby stabilizing banks and reducing erosion.

The amount of native riparian habitat in desert areas has been drastically decreased by a number of factors, including changes in river flow regime, livestock overgrazing, and clearing for urban or agricultural development. Dr. Roy Johnson, the Director of the National Riparian Council, estimates that as much as 95 percent of the original riparian habitat in the state of Arizona has been destroyed and 99 percent has been degraded. Along the lower Colorado River, during the 1940s and 1950s, farmers cleared wide portions of the floodplain near Yuma, Blythe, and Parker, leaving remnant tracts only on National Wildlife Refuges and Indian Reservations. In the 1950s and 1960s, the Indians followed suit and began to develop irrigated agriculture on their lands. Today, over one-half of the Colorado River is impeded by major dams or inundated by reservoirs. Farms, towns, and salt cedar have replaced most of the native vegetation along the banks on the other half. Birds such as Harris hawks, vermillion flycatchers, Coopers hawks, summer tanagers, yellow-billed cuckoos, and northern gilded flickers were once common along the lower Colorado River but are now in danger of complete extirpation from the river as a result of riparian habitat destruction.

The Federation believes that the Colorado River Floodway Protection Act is an important step towards Federal protection of riparian habitats and other endangered ecosystems. We recommend that the conservation of fish, wildlife, and other natural resources be included in the statement of the Act's purposes. Specifying conservation of natural resources as a purpose of the Colorado River Floodway Protection Act will enhance the likelihood of protection and restoration of riparian communities.

The Federation suggests the following additions to S. 1696:

- Insert the clause "protect fish, wildlife, native riparian vegetation, and other natural resources" to the purposes of the Act, section 2(b)(1).

- Include among the members of the Task Force established in section 4(a) one representative each from the Arizona Game and Fish Department, California Department of Fish and Game, and Nevada Department of Wildlife.

- Add the phrase "restoration of native riparian vegetation" after the phrase "acquisition of fish and wildlife habitat" in section 7(E)(1).

New levee construction would conflict with the Act's purposes.

S. 1696 contains several exemptions from the prohibition on Federal subsidies to development in the Floodway. The Federation agrees that some of these exemptions are reasonable, given that much of the Floodway land has already been developed to some degree.

However, we recommend that new levee construction not be included in the list of permissable Federal expenditures in Sec. 7 (a). The construction of new levees contradicts the purpose of the Floodway, which is to allow natural conveyance of flood flows through the river channel. New levees would constrict the channel and limit its capacity. Additional levees could also give floodplain residents and businesses a false sense of security, as evidenced in 1983 by the extensive damage caused by floodplain saturation behind the levees.

Additional land in the Floodway should not be cultivated.

The Federation interprets the language of Section 6 to prohibit subsidies to agriculture within the Floodway, and we believe such a prohibition is a great strength of the bill. Deficiency and Federal Crop Insurance payments to floodplain farmers encourage risky investment underwritten by the taxpayers. Agriculture in the Floodway does not contribute significantly to the regional economy, but the Federal government now pays to maintain it. The contribution of agriculture to personal income in this area has been declining; for example, agriculture declined as a percentage of total personal income in Arizona from 7.9 percent in 1959 to a mere 3.7 percent in 1971. U.S. Department of Commerce estimates from 1981 predicted that farm income would account for less than 2 percent of Arizona's total income in 1985 and would continue to decrease as a percentage of personal income through 2030. In 1985, 139 million acres of Arizona's cotton farmland, 77 percent of the land eligible for Federal crop support payments in the state, did not produce crops. This figure suggests that there is little need for sustaining cultivated acreage in hazardous, economically marginal, or environmentally valuable areas, such as the Colorado River Floodway.

Though subsidies to agriculture in the Floodway do not constitute a major Federal investment, they are significant from a resource conservation perspective. Research by Conine, Anderson, Ohmart, and Drake (Responses of Riparian Species to Agricultural Habitat Conversions; in Strategies for Protection and Management of Floodplain Wetlands and other Riparian Ecosystems, Proceedings of the symposium, December 11-13, 1978, Forest Service Publication GTR-WO-12) showed that agricultural land is of far lower wildlife value than native riparian habitat. If further cultivation within the Floodway is discouraged, more land will be available for conservation and restoration of riparian habitat.

Section 7 (E)(9) specifically exempts "agricultural uses that do not involve permanent crops" from the prohibitions in Section 6. Livestock grazing, if permitted under this clause, should be closely monitored as overgrazing has severely damaged riparian habitats in arid lands and prevents the regeneration of native vegetation.

S. 1696 is preferable to S. 498

S. 498, the Colorado River Floodway Task Force Act, provides no reasonable resolution to the flooding problem on the lower Colorado River. S. 498 would allow designation of a floodway by local officials, who have a high stake in development, with no Congressional oversight. Floodway boundries could be established by a quorum made up entirely of county and municipal authorities, who may be subject to short-term economic pressures to make the floodway as narrow as possible.

The Task Force Act would also provide what is essentially a free insurance policy for floodplain development by authorizing Interior to compensate victims of the 1983 floods, without setting a ceiling on such payments. Rather than discouraging future floodplain development, such a policy could have the opposite effect. In short, S. 498 would do little to prevent further property damage from flooding on the lower Colorado River.

The Colorado's flows, which went from 5 million acre-feet in 1977 to 24 million acre-feet in 1984, cannot be predicted far enough in advance to prevent a recurrence of the 1983 disaster without additional flood protection measures. The 100-year floodplain of the Colorado River will always be subject to periodic flooding; it would be prudent for the region and the nation to accept this fact and allow objective floodway designation by the Department of Interior as specified in S. 1696.

Conclusion

The National Wildlife Federation supports S. 1696. We feel that this bill makes prudent use of non-structural measures to solve a difficult river management dilemma. The Act will prevent future damage to private property within the Floodway, save Treasury dollars, and help to conserve some of the nation's most valuable wildlife habitat.

ESTABLISHED IN 1918 AS A PUBLIC AGENCY

COACHELLA VALLEY WATER DISTRICT

POST OFFICE BOX 1058 • COACHELLA, CALIFORNIA 92236 • TELEPHONE (714) 398-2651

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BERNARDINE SUTTON, SECRETARY
VICTOR B. HARDY, AUDITOR
REDWINE AND SHERRILL, ATTORNEYS

April 16, 1986

The Honorable James Abdnor
Chairman, Subcommittee on Water Resources
Senate Committee on Environment and Public Works
Hart Senate Office Building Room 309
Washington, D.C. 20510

Dear Senator Abdnor:

We urge your support for S. 1696, the proposed Colorado River Floodway Protection Act, which is scheduled to be heard by your subcommittee on April 22.

With an average annual rainfall of only three inches per year, approximately 90 percent of the water used by the people of Coachella Valley comes from the Colorado River.

Because the river is vital to meeting the water needs of seven states and Mexico, its water resources are over committed and it is extremely important that an equitable balance be maintained it its limited reservoirs to provide adequate storage and reasonable flood control.

S. 1696 would take steps toward protecting lives and property by restricting development from the natural Colorado River bottom below Davis Dam to allow for controlled flood flows of up to 40,000 cubic feet per second. In turn, this would allow the continued operation of reservoirs along the river to maximum benefit for both water storage and flood protection.

Your support for passage of this bill is vital to allow proper management of one of the important water systems in the United States.

Thanks for your consideration.

Yours very truly,

Tom Levy

Tom Levy
General Manager-Chief Engineer

DCM
cc: members, Senate Subcommittee on Water Resources

TRUE CONSERVATION
USE WATER WISELY

Chemehuevi Indian Tribe

P.O. BOX 1976 • CHEMEHUEVI VALLEY, CALIFORNIA 92363 • (619) 858-4531

May 21, 1986

Committee on Environment and Public Works
SD-410 Dirksen Senate Office Building
Washington, D.C. 20510
Attention: Mark Haynes

RE: S.1696 and S.498 (DeConcini's Substitute Amendment) - Colorado River Floodway Bill

Dear Sirs:

We, of the Chemehuevi Indian Tribe, do hereby go on record as supporting the position of the Colorado River Indian Tribes, as stated in testimony to the Water Resources sub-committee of the Senate Committee on Environment and Public Works, on April 22, 1986. This testimony was presented by the Chairman of the Colorado River Indian Tribes, Anthony Drennan, Sr., regarding the Colorado River Floodway Bill.

If there is to be legislation on this subject, the outcome could have a very drastic economical and environmental impact on all Indian Tribes along the Colorado River.

Thank you for taking this letter of support and very brief testimony into consideration, due to the fact that this bill will effect the Chemehuevi Indian Tribe insomuch as the Chemehuevi Indian Reservation is located between the Davis Dam and Parker Dam.

Therefore, we are submitting this letter supporting the position of the Colorado River Indian Tribes, along with a very brief testimony.

If I can be of any assistance in this matter, or if you have any questions, please feel free to contact me at (619) 858-4531.

Respectfully,

CHEMEHUEVI INDIAN TRIBE

Richard Alvarez
Richard Alvarez
Chairman

THE COCOPAH INDIAN TRIBE

COCOPAH TRIBAL OFFICE
Box G
Somerton, Arizona 85350
Telephone 627-2102 or 627-2061

May 21, 1986

Committee on Environment and Public Works
SD-410 Dirkson Senate Office Building
Washington, D.C. 20510

Attention: Mark Haynes

Dear Committee Members:

On April 22, 1986 a hearing was held on S.1696 and S.498, the proposed Colorado River Floodway Protection Act. At the conclusion of the hearing, interested parties were invited to submit comments on the bill on or before May 22, 1986. Enclosed are comments submitted for and on behalf of the Cocopah Indian Tribe of Arizona. We respectfully request that these comments be included in the hearing record on S.1696 and S.498.

The Cocopah Indian Reservation is located near Yuma, Arizona in the southwest corner of the state. It is comprised of approximately 6,000 acres of land, with 4,000 of those acres being recently acquired in 1985 pursuant to the Cocopah Land Acquisition Act of 1985. The Reservation is divided into three sections - North Cocopah, West Cocopah, and East Cocopah. Both North and West Cocopah contain substantial acreage bordering the Colorado River. It is likely that a major portion of North Cocopah and West Cocopah fall within the Colorado River Floodway.

There are approximately 869 Cocopahs, according to the January, 1983 Bureau of Indian Affairs' Report on Labor Force. The unemployment rate on the Reservation is high, approximately 54%. Fifty-nine percent (59%) of the Tribe earns less than $7,000 per year.

Irrigated agriculture dominates the Cocopah land base. Before the Acquisition Act, approximately 1,600 acres were classified irrigable. Only 685 of those acres were farmed through leases to non-Indians. Agricultural income, the only source of tribal income, totalled $71,683 in 1981. As a result of the land acquisition, and further agricultural development, the Tribe now has 1,423 acres under lease and is negotiating to lease 200 more acres.

The Cocopah Reservation presently has no commercial activities or industries located within its exterior boundaries. Although the Reservation has a labor force sufficient to support commercial and industrial development, until recently there was no land base to support such efforts. In 1985, the Cocopah acquired additional Reservation lands. The Tribe's acquisition objectives were to provide a living area proportional to population requirements; to increase economic potential of Reservation resource base; and to enhance employment opportunities and the general standard of living of the Tribe. The Tribe fears that the Colorado River Floodway Protection Act, as embodied in S.1696, threatens to undermine these stated objectives. S.1696 will frustrate the Tribe's current plans to further its development objectives. S.1696, as presently proposed, reflects little consideration for the unique status of Indian tribes vis-a-vis their trust relationship with the federal government. The proposed Act fails to take special account of the multitude of federal funds expended to provide necessary services to Indians dwelling on or near the Reservation. The Act, by prohibiting federal expenditures and assistance for any purpose not specifically exempted by its terms, creates the potential for conflict with other federal law specifically intended to provide the assistance prohibited by S.1696. S.1696 would create confusion among the various agencies with the responsibility of administering such assistance. A strict reading of the Act will result in the prohibition of any federal expenditure within the flood plain except those authorized under Section 7. The Bureau of Indian Affairs, the Indian Health Service, Farmers Home Administration and others, would be required to follow those procedures outlined in Section 7 before providing the assistance and services that is their administrative duty to provide. The proposed Act would potentially prevent visiting nurses from visiting homes in the floodway, prevent any improvement in domestic water and sanitation, prevent any road improvements, and halt the Tribe's plans for recreational development on the river.

The trust relationship between the government and the Cocopah Tribe is further ignored by the provisions on federal leases. Those provisions could prohibit the Tribe from leasing irrigable agricultural land merely because legal title of the land is held in trust for the Tribe by the federal government. Such limitations have not been placed on non-Indian owners of land and unfairly burden the Indian Tribe and its power and authority as a landowner to determine and regulate the course of economic development within the boundaries of the Reservation.

The exceptions outlined in Section 7 of the proposed Act do little to alleviate the Act's restrictions from the Tribe's point of view. It is not clear what effect the limitations will have on the Tribe's current attempts to develop a recreational vehicle park on the newly acquired land in North Cocopah. At a minimum S.1696 will make obtaining federal financial assistance for such development more difficult. This a very unfortunate result given the very positive effect this park could have for Cocopah.

The allowance of compatible agricultural uses is not sufficient to meet the needs of the Cocopah Tribe. As indicated above, most of the Reservation land is used for agriculture. In order to effectively farm this land the Tribe must be able to develop it, putting in concrete ditches, water pumps, and electrical lines. It is not clear whether these developments would be considered "minimal" under the Act.

Finally, the Priorities of Laws section of the proposed Act is not clear with regard to the handling of tribal laws and ordinances which might be in conflict with the Act. It is in fact silent on this matter.

There are many issues and concerns specific to the unique status of Indian tribes which should be addressed in amendments before the Act is adopted by the Committee. Failure to do so will necessarily result in great confusion and expensive delay for the Tribes. For these reasons, the Cocopah Tribe prefers the approach taken by Senator DeConcini in S.498 which would appoint a task force to study the problem and report its recommendations to Congress. This approach would allow Congress to understand the implications of the unique nature of Indian lands and laws governing Indian reservations along the river and would allow thorough consideration of these implications prior to taking final action. If S.1696 is adopted, we request an amendment which exempts Indian assistance and Indian land use. We request that these exemptions be developed in consultation with the Indian tribes affected. We would also, as requested by Anthony Drennan, Sr., Chairman of the Colorado River Indian Tribes, that the bill be amended to provide funds to the affected Indian tribes to enable them to fully participate in the development of such exemptions.

Historically, the Cocopah Tribe has demonstrated a consistent and persistent effort toward their goal of obtaining a homeland proportional to their social, economic and cultural requirements, commensurate with their objectives to establish self-sufficiency and to preserve and perpetuate their tribal identity. Their program of development has consistently complied with the Floodway Management restrictions presently in effect. The Cocopah Tribe has not contributed to the problem of inappropriate development within the floodway which S.1696 attempts to correct. The Cocopah Tribe has not authorized construction of any permanent improvements in the flood plain. It is now being asked to pay for the solution. S.1696 will be an unnecessary burden upon the Tribe's development and will interfere with its efforts of self-determination. We respectfully request that the Senate adopt the DeConcini Substitute as a better approach to resolving these problems and one which will allow for fuller discussion of the particular identifiable Indian issues. Thank you for your consideration of these comments.

Respectfully submitted,

THE COCOPAH TRIBE

Fred Miller

Fred Miller, Sr.
Chairman

rdw

April 17, 1986

Senator James Abdnor
United States Senate
Washington, D.C. 20510

Dear Senator Abdnor:

The Subcommittee on Water Resources, under your chairmanship, will hold a hearing April 22 on S. 1696, the Colorado River Floodway Protection Act. I am writing to urge the subcommittee's support of this important legislation.

The unusually high releases of water from Colorado River reservoirs in the past two years, and the resulting flooding--especially below Parker Dam to the international border--amply demonstrated the need for S. 1696.

As you know, the Colorado River Floodway Protection Act restricts federal expenditures which could encourage development between Davis Dam and the Mexican-American boundary. The maintenance of the floodway is essential to the efficient operation of Colorado River reservoirs for the many purposes for which they were designed. The alternatives to S. 1696 for greater flood protection would mean making smaller flood control releases. Undoubtedly, there would be years when existing reservoirs could not contain high runoff. By necessity, additional reservoir space would have to be created at great expense.

The proposed bill is consistent with the effective and balanced management of the river, the protection of human life and property, and the protection of our natural resources.

Colorado River Water Users Association
WYOMING
COLORADO
UTAH
NEVADA
NEW MEXICO
ARIZONA
CALIFORNIA

As a member of the Colorado River Board of California and President of the Colorado River Water Users Association representing members from the seven basin states, I want to assure you that S. 1696 enjoys wide support in the water industry. As a member and former chairman of the board of the Metropolitan Water District of Southern California, I remind you that Metropolitan strongly supported the House version of this bill. Our board will be taking a similar action on S. 1696.

I thank you and the Subcommittee on Water Resources for your consideration of this important legislation.

Sincerely,

Howard H Hawkins

Howard H. Hawkins
President

La Paz County Board of Supervisors
1301 ARIZONA AVENUE, SUITE 6
POST OFFICE BOX C
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(602) 669-6115

MARYETTA TSOSIE
DISTRICT #1
DONALD D. DENTON
DISTRICT #2
BEN F. MATTHEWS
DISTRICT #3
NETA J. BOWMAN
CLERK/COUNTY MANAGER

May 20, 1986

Committee on Environment and Public Works
SD-410 Dirksen Senate Office Building
Washington, D.C. 20510
Attention: Mark Haynes

Gentlemen:

Please accept this letter as La Paz County Board of Supervisors endorsement of S. 498, introduced by Mr. DeConcini; and, further, as opposition to H.R. 1246, introduced by Mr. Cheney. Enclosed are copies of Resolutions dated April 15, 1985, affirming the position of La Paz County on each of the respective bills.

In addition, we have included copy of an October 7, 1985 letter opposing both H.R. 1246 and S. 1696. A list of those to whom the letter was sent, or a variation thereof, is enclosed.

This matter is of extreme importance to La Paz County. Therefore, we request entry of this letter and enclosures as testimony in opposition to H.R. 1246 and S. 1696 as well as in support of S. 498.

Thank you for your consideration.

Sincerely,

Maryetta P. Tsosie
Chairman

ep

Enclosures

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MARYETTA TSOSIE
DISTRICT #1

DONALD D. DENTON
DISTRICT #2

WAYNE SWEETLAND
DISTRICT #3

NETA J. BOWMAN
CLERK/COUNTY MANAGER

RESOLUTION OF FAVOR OF S. 498

WHEREAS, La Paz County did suffer substantial property damage and severe economic losses as a result of the Colorado River Flood of 1983; and,

WHEREAS, the operation and maintenance of the Colorado River system including the dams and other control structures which serve multiple purposes, is complex in nature, and,

WHEREAS, the need for a complete and comprehensive study to address the problems created by the Colorado River Flood of 1983 and to prescribe solutions to those problems, does exist, and,

WHEREAS, Senate Bill S. 498 establishes the Colorado River Floodway Task Force of 1985 for the purpose of conducting a detailed and comprehensive study of all aspects of management of the Colorado River system and to make recommendations on floodway size, recreation development, wildlife enhancement, floodway management, emergency plans, federal expenditure within the floodway, cooperation of economic losses, and past and future operation of the dams in terms of power generation, flood control and water storage; and,

WHEREAS, the La Paz County Board of Supervisors realizes the substantial benefits to be derived from such a study; and,

WHEREAS, the La Paz County Board of Supervisors believes that the study serves as a prerequisite to the adoption of regulatory stipulations:

NOW, THEREFORE, BE IT RESOLVED that the La Paz County Board of Supervisors, acting in the public interest and in its official capacity, does hereby officially and unanimously endorse and support passage of Senate Bill S. 498.

Resolved this 15th day of April, 1985.

Don Denton, Chairman
District 2

Maryetta P. Tsosie
Maryetta Tsosie
District 1

Ben Matthews
Ben Matthews
District 3

ATTEST:

Neta J. Bowman
Clerk of the Board

La Paz County Board of Supervisors
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MARYETTA TSOSIE
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DISTRICT #2

WAYNE SWEETLAND
DISTRICT #3

NETA J. BOWMAN
CLERK/COUNTY MANAGER

RESOLUTION IN OPPOSITION OF HR 1246

WHEREAS, the La Paz County Board of Supervisors has reviewed House Resolution #1246, cited as the "Colorado River Floodway Protection Act" and,

WHEREAS, the La Paz County Board of Supervisors has considered the implications of adoption of House Resolution #1246 and,

WHEREAS, the La Paz County Board of Supervisors has determined that adoption and passage of House Resolution #1246 would be severely detrimental to the growth, development and prosperity of La Paz County and would create undue hardship and economic burden upon the citizens of La Paz County; and,

WHEREAS, the La Paz County Board of Supervisors has adopted and does vigorously enforce a Flood Damage Prevention Ordinance which is in conformance with the standards set forth by the Federal Emergency Management Agency and the Arizona Revised Statutes relating to floodplain and floodway management; and,

WHEREAS, the Colorado River Floodway Task Force established in House Resolution #1246 does not include representation or participation from Lake Havasu City, Riviera, Topock, Lake Rancheros, Bermuda City, Bermuda Plantations, and Golden Shores in Arizona, Laughlin in Nevada, Winter Haven in California, nor does it include representation or participation from the Fish and Wildlife Service, the Colorado River Wildlife Council, nor does it include representation and participation from any law enforcement agencies, nor does it include representation and participation from any private citizens; and,

WHEREAS, House Resolution #1246 establishes regulatory stipulations prior to the completion of the study to be conducted by the task force; and,

NOW, THEREFORE BE IT RESOLVED that the La Paz County Board of Supervisors, acting in the public interest and in its official capacity, does hereby officially and unanimously oppose the passage and adoption of House Resolution #1246.

Resolved this 15th day of April, 1985.

Don Denton, Chairman
District 2

Maryetta Tsosie
District 1

Ben Matthews
District 3

ATTEST:

Neta J. Bowman
Clerk of the Board

La Paz County Board of Supervisors
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MARYELLA [illegible]
DISTRICT 1
DONALD [illegible]
DISTRICT 2
BEN F. MATTHEWS
DISTRICT 3
NETA J. [illegible]
CLERK/COUNTY MANAGER

October 7, 1985

On April 15, 1985, the La Paz County Board of Supervisors formally resolved to oppose the passage of H.R. 1246, "The Colorado River Floodway Protection Act." Today, the Board of Supervisors formally opposed S. 1696.

We support Section 4 of S. 1696 which appoints a Colorado River Floodway Task Force, which includes local representation for the development of a comprehensive mechanism to examine and address the problems associated with the complex task of managing the Colorado River.

However, we cannot support Section 5 of H.R. 1246 and S. 1696 which identifies specific criteria for the delineation of floodway boundaries, prior to any study whatsoever by the task force established in the preceding section. We feel that this action is unwarranted and ill advised. The purpose of the task force is to study the various aspects of Colorado River management and recommend specific floodway boundaries needed to achieve prudent floodway management, as a result of the study. It is premature to establish the proposed floodway criteria prior to the completion of the study.

The Parker Strip along the Colorado River is a primary element of La Paz County's economic base and our concern for flood protection is extreme. But, we are also concerned about arbitrary regulations which could be more devastating to our county than the 1983 flood.

October 7, 1985
Page Two

We sincerely hope that you will concur with your constituency which is most affected by S. 1696 and take a stand in opposition to its passage. We also extend an invitation to you and your staff to meet with us here in the Parker area so that we may show you firsthand that our concerns with this bill are truly valid.

Please advise us of the hearing dates on S. 1696.

Sincerely,

Donald D. Denton
Chairman

et

cc: Governor Bruce Babbitt

Department of Water and Power the City of Los Angeles

TOM BRADLEY
Mayor

Commission
JACK W. LEENEY, *President*
RICK J. CARUSO, *Vice President*
ANGEL M. ECHEVARRIA
CAROL WHEELER
WALTER A. ZELMAN
JUDITH K. DAVISON, *Secretary*

PAUL H. LANE, *General Manager and Chief Engineer*
NORMAN L. NICHOLS, *Assistant General Manager - Power*
DUANE L. GEORGESON, *Assistant General Manager - Water*
NORMAN J. POWERS, *Chief Financial Officer*

April 18, 1986

The Honorable James Abdnor
Chairman, Subcommittee on
  Water Resources
Senate Committee on Environment
  and Public Works
Senate Hart Office Building, Room 508
Washington, D.C. 20510

Dear Senator Abdnor:

Colorado River Floodway Legislation

This letter concerns Senate Bill S. 1696, introduced by Senator Barry Goldwater and cosponsored by Senators Pete Wilson and Alan Cranston and five other Colorado River Basin state Senators. This is the companion bill to House Bill H.R. 1246 which was passed by the House on September 24, 1985.

The purpose of the bill is to establish a federally declared floodway on the Colorado River below Davis Dam to minimize the loss of human life, protect health and safety, and minimize damage to property and natural resources in the Lower Colorado River area. It is essential to accomplishing the multiple purposes for which the Colorado River reservoirs were built.

The boundaries of the proposed floodway would accommodate a 40,000 cubic feet per second release into the Colorado River from Davis Dam to the Southern International Boundary. The proposed legislation would:

- Provide for a study to establish the tributary inflow downstream from Davis Dam.
- Provide for a Task Force to prepare recommendations concerning management of land within the floodway.
- Limit federal expenditures for any purpose within the floodway.

I concur with the recommendation of the Colorado River Board of California, of which I am a member representing the Los Angeles Department of Water and Power. The Board has recommended support of this floodway legislation.

Your support of Colorado River floodway legislation, as in S. 1696, would be appreciated.

Sincerely,

Paul H Lane

PAUL H. LANE
General Manager and Chief Engineer

cc: Colorado River Board
Mr. Raymond R. Rummonds
Chairman

Mr. Vernon E. Valantine
Chief Engineer

Mr. Dennis B. Underwood
Executive Secretary

The Metropolitan Water District of Southern California

April 17, 1986

Honorable James Abdnor, Chairman
Subcommittee on Water Resources
Senate Committee on Environment
and Public Works
Senate Hart Office Building, Room 508
Washington, D.C. 20510

Dear Senator Abdnor:

Proposed Colorado River Floodway

The Metropolitan Water District of Southern California supports Senate Bill S. 1696, the proposed Colorado River Floodway Protection Act. I solicit your support of this legislation.

Senator Barry M. Goldwater introduced S. 1696 on September 24, 1985, and has the co-sponsorship of both Senators Alan Cranston and Pete Wilson, as well as Senators Paul Laxalt, Chic Hecht, Jake Garn, Alan Simpson, and Malcolm Wallop. In addition, the legislation is supported by all the seven basin State governors.

If enacted, the major effect of S. 1696 would be to establish a federally declared floodway to discourage new development within the floodway of the Colorado River. Congress has authorized and appropriated tens of millions of dollars since 1925 in developing the Colorado River Front Work and Levee System (see P.L. 69-560, P.L. 79-469). The Front Work and Levee System was developed with a defined floodway to handle flood flows. The Colorado River Floodway Protection Act would restrict future federal expenditures and financial assistance which have the effect of encouraging and subsidizing development within the Colorado River

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floodway. This bill is virtually the same as House Bill H.R. 1246, which was passed by the House of Representatives in 1985.

The federal facilities on the Colorado River provide for multiple use of an important national water resource, as has been envisioned by Congress on numerous occasions in the past. Such support would continue with enactment of S. 1696. The water resources of the Colorado River are essential, not only to Metropolitan's 13 million residents in Southern California, but to other major metropolitan areas in the southwest: Denver, Salt Lake City, Las Vegas, Phoenix, Albuquerque, and Tucson.

Sincerely,

E. Thornton Ibbetson
Chairman of the Board

JVD:asj

TOWN OF PARKER

1314 11TH STREET • POST OFFICE BOX 609 • PARKER, ARIZONA 85344 • (602) 669-9265

RESOLUTION NO. 386

A RESOLUTION OF THE TOWN OF PARKER SUPPORTING THE COLORADO RIVER INDIAN TRIBES' POSITION ON THE COLORADO RIVER FLOODWAY BILL.

WHEREAS; The Colorado River Indian Tribes are the largest single riverfront property owners by virtue of Federal lands held in trust for the tribe, along the lower Colorado River, and

WHEREAS; The government of the Colorado River Indian Tribes in addressing the problems created by unemployment and depressed agricultural economy on the reservation has focused upon the development of other resources such as recreational, industrial and commercial to improve the economic condition of the Tribes, and

WHEREAS; The Colorado River Indian Tribes have consistently administered their lands to minimize the loss of human life, property damage and to protect the environment, natural resources and wildlife, and

WHEREAS; The Colorado River Indian Tribes believe the passage of S.1696 or the DeConcini substitute bill, as written, will restrict development on the reservation,

NOW, THEREFORE, Let it be known the Mayor and Common Council of the Town of Parker support the position of the Colorado River Indian Tribes in their opposition to the passage of the Colorado River Floodway Bill in its present form and request a task force be appointed to study these complex problems for a more equitable solution.

APPROVED:

Samuel E. Davis

SAMUEL E. DAVIS, MAYOR

ATTEST:

Shirley Bassford

SHIRLEY BASSFORD, TOWN CLERK

APPROVED AS TO FORM:

GERALD W. HUNT, TOWN ATTORNEY

STATEMENT OF ELVIN B. KELLY

PRESIDENT, QUECHAN TRIBAL COUNCIL

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

HELD APRIL 22, 1986

The Quechan Indian Tribe opposes enactment of S. 1696, a bill to establish a Colorado River Floodway, unless it is amended to protect the Tribe's land and water rights and remove unnecessary restrictions on Federal expenditures or financial assistance within the floodway.

We support the bill's intentions and deeply appreciate the lifelong dedication of its principal sponsor, Senator Barry Goldwater, to the economic development of Indian tribes, protection of tribal land and water, and respect for our cultural values.

A portion of the Quechan Reservation lies within the proposed floodway. The proposed legislation, while generally advancing worthwhile public purposes, would impair the ability of the Quechan Tribe to use land in the floodway for the purposes for which its reservation was created.

Agriculture

S. 1696 would impair the ability of a tribe to obtain Federal funding or Federal financial assistance for agriculture.

Section 6(a) provides that no new expenditures or new financial assistance may be made for any purpose within the floodway, with the exceptions specified in section 7.

Section 7(e)(9) lists, as an exception, "Compatible agricultural uses that do not involve permanent crops and include only a minimal amount of permanent facilities in the floodway."

The bill does not define "permanent crops"; and the House report language affords no guidance. The term could be meant or interpreted to cover, for example, asparagus, as well as pistachio trees. For the part of the floodway subject to 5-year floods, it may not make economic sense to plant, for example, asparagus; but, in the part subject to 100-year floods, it may well make sense to plant asparagus and other permanent crops.

Similarly, the bill does not define the terms "minimal amount" or "permanent facilities". The terms could be meant or interpreted to prohibit Federal expenditures or financial assistance for the construction of canals, laterals, concrete-lined sublaterals and field ditches, and drip systems. It appears that the legislation would clearly exempt only portable sprinkler systems. Again, the legislation makes no attempt to distinguish between those parts of the floodway subject to frequent inundations and those subject only to 100-year floods.

Moreover, the language of section 7(e)(9) does not clearly exempt payment of operation, maintenance, and replacement costs for Indian irrigation systems pursuant the Synder Act (25 U.S.C. 13) and 25 U.S.C. 385, except those that are associated with "permanent crops" and a "minimal amount of permanent facilities."

We suggest that the bill be amended to delete the language in 7(e)(9) relating to permanent crops and permanent facilities. We recommend that the appropriate Federal officer be permitted to make Federal expenditures or financial assistance available for agricultural uses if such expenditures or assistance are in the interests of the United States in protecting and promoting the economic wellbeing of Indian tribes.

Leasing

Section 13 would prohibit new leases or extension of existing leases (e.g., for farming) in the floodway, if tribal land, which is held in trust by the Federal government, is considered to be "owned by the United States". In this regard, we note that the section-by-section analysis printed in Senator Goldwater's floor statement of September 24, 1985 (Cong. Record, page S12047) indicates that section 13 is intended to apply to "lands held in trust by the United States, such as Indian lands."

The trust status of Indian lands should not be grounds for impairing the ability of tribes to use their lands to achieve the purposes for which their reservations were created. No such prohibition is imposed on private landowners.

Section 13 could be construed as a taking under the Fifth Amendment and, therefore, compensable.

Section 13 should be amended to exempt Indian trust land. This could be done by adding a new subsection --

(f) The provisions of subsection (a), (b), and (c) shall not apply to lands held in trust by the United States for the benefit of any Indian tribe or individual.

Yuma Crossing

We note that the section-by-section analysis referred to above states --

> The Committee is of the opinion that the Yuma Crossing Park covered by an agreement between the City of Yuma and the Bureau of Reclamation is an excepted activity as provided in this section.

The Quechan tribe has had under consideration for some time construction of companion facilities on the California side. These facilities would include a motel and restaurant.

Under present law, the Tribe could apply to the BIA for a direct loan or a loan guarantee. Approval of BIA financing would be contingent on a business judgment of the risk entailed in making an investment in a commercial facility located in the flood plain. S. 1696 would bar the BIA from making or guaranteeing such a loan, even if an economic analysis of the project were to demonstrate that the risk of default was within acceptable limits.

Priority of Laws

Section 9 provides that nothing in the Act shall be construed as indicating intent on the part of Congress to change the existing relationship of other Federal laws to the laws of a State, or a political subdivision of a State, or to invalidate any provision of State or local law unless there is a direct and irreconcilable conflict.

The language should be amended to include the laws of an Indian tribe.

Summary

The Quechan Tribe lacks the internal capital and income to fund agricultural or commercial development. A number of factors make access to private capital difficult or impossible. Thus, as other tribes, it relies on Federal financial assistance and development leases.

The effect of S.1696 would be to impair economic use of Quechan land in the floodway to such a degree as to render the land almost worthless. Without economic use of the land, the tribe may be unable to use its decreed water rights.

The legislation should be amended to remove unnecessary restrictions on Federal expenditures, financial assistance, and leasing and provide compensatory benefits to help offset the effect of those restrictions that are deemed to be essential.

II

99TH CONGRESS
1ST SESSION

S. 1696

To establish a federally declared Floodway for the Colorado River below Davis Dam.

IN THE SENATE OF THE UNITED STATES

SEPTEMBER 24 (legislative day, SEPTEMBER 23), 1985

Mr. GOLDWATER (for himself, Mr. SIMPSON, Mr. CRANSTON, Mr. HECHT, Mr. WILSON, Mr. LAXALT, Mr. GARN, and Mr. WALLOP) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

---

A BILL

To establish a federally declared Floodway for the Colorado River below Davis Dam.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

SECTION 1. This Act may be cited as the "Colorado River Floodway Protection Act".

FINDINGS AND PURPOSES

SEC. 2. (a) FINDINGS.—The Congress finds that—

(1) there are multiple purposes established by law for the dams and other control structures administered by the Secretary of the Interior on the Colorado River;

(2) the maintenance of the Colorado River Floodway established in this Act is essential to accomplish these multiple purposes;

(3) developments within the Floodway are and will continue to be vulnerable to damaging flows such as the property damage which occurred in 1983 and may occur in the future;

(4) certain Federal programs which subsidize or permit development within the Floodway threaten human life, health, property, and natural resources; and

(5) there is a need for coordinated Federal, State, and local action to limit Floodway development.

(b) PURPOSE.—The Congress declares that the purposes of this Act are to—

(1) establish the Colorado River Floodway, as designated and described further in this Act, so as to provide benefits to river users and to minimize the loss of human life, protect health and safety, and minimize damage to property and natural resources by restricting future Federal expenditures and financial assistance, except public health funds, which have the effect of encouraging development within the Colorado River Floodway; and

(2) establish a task force to advise the Secretary of the Interior and the Congress on establishment of the Floodway and on managing existing and future development within the Floodway, including the appropriateness of compensation in specified cases of extraordinary hardship.

DEFINITIONS

SEC. 3. (a) The term "Committees" refers to the Committee on Interior and Insular Affairs of the U.S. House of Representatives and the Committee on Energy and Natural Resources of the U.S. Senate.

(b) The term "financial assistance" means any form of loan, grant, guaranty, insurance, payment, rebate, subsidy, or any other form of direct or indirect Federal assistance other than—

(1) general revenue-sharing grants made under section 102 of the State and Local Fiscal Assistance Amendments of 1972 (31 U.S.C. 1221);

(2) deposit or account insurance for customers of banks, savings and loan associations, credit unions, or similar institutions;

(3) the purchase of mortgages or loans by the Government National Mortgage Association, the Federal National Mortgage Association, or the Federal Home Loan Mortgage Corporation;

(4) assistance for environmental studies, plans, and assessments that are required incident to the issuance of permits or other authorizations under Federal law; and

(5) assistance pursuant to programs entirely unrelated to development, such as any Federal or federally assisted public assistance program or any Federal old-age, survivors, or disability insurance program.

Such term also includes flood insurance described in sections 1322 (a) and (b) of the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4028) on and after the dates on which the provisions of those sections become effective.

(c) The term "Secretary" means the Secretary of the Interior.

(d) The term "water district" means any public agency providing water service, including water districts, county water districts, public utility districts, and irrigation districts.

(e) The term "Floodway" means the Colorado River Floodway established in section 5 of this Act.

COLORADO RIVER FLOODWAY TASK FORCE

SEC. 4. (a) To advise the Secretary and the Congress there shall be a Colorado River Floodway Task Force, which shall include representatives of—

(1) each State (appointed by the Governor) and Indian reservation in which the Floodway is located;

(2) each county in which the Floodway is located;

(3) one law enforcement representative from each county in which the Floodway is located; and

(4) each water district in which the Floodway is located;

(5) the cities of Needles, Parker, Blythe, Bullhead City, Yuma, Laughlin, Nevada (if and when incorporated), and Mojave County, Arizona Supervisor District No. 2 (chosen by, but not a member of the Board of Supervisors);

(6) one representative of the Chamber of Commerce from each county in which the Floodway is located;

(7) the Army Corps of Engineers;

(8) the Federal Emergency Management Agency (FEMA);

(9) the Department of Agriculture;

(10) the Department of the Interior; and

(11) the Department of State.

(b) The task force shall be chartered and operate under the provisions of the Federal Advisory Committee Act (Public Law 92-463; 5 U.S.C. App. I) and shall prepare recommendations concerning the Colorado River Floodway, which recommendations shall deal with:

(1) the means to restore and maintain the Floodway specified in section 5 of this Act, including, but

not limited to, specific instances where land transfers or relocations, or other changes in land management, might best effect the purposes of this Act; and

(2) the necessity for additional Floodway management legislation at local, State, and Federal levels;

(3) the development of specific design criteria for the creation of the Floodway boundaries;

(4) the review of mapping procedures for Floodway boundaries; and

(5) whether compensation should be recommended in specific cases of extraordinary hardship resulting from impacts of the 1983 flood on property outside the Floodway which could not reasonably have been foreseen.

(c) The task force shall exist for at least one year after the date of enactment of this Act, or until such time as the Secretary has filed with the Committees the maps described in subsection 5(b)(2). The task force shall file its report with the Secretary and the Committees within nine months after the date of enactment of this Act.

COLORADO RIVER FLOODWAY

SEC. 5. (a) There is established the Colorado River Floodway as identified and generally depicted on maps that are to be submitted by the Secretary.

(b)(1) Within eighteen months after the date of enactment of this Act, the Secretary, in consultation with the seven Colorado River Basin States, represented by persons designated by the Governors of those States (including, in the Governor's discretion, members of the Colorado River Floodway Task Force), and any other interested parties shall:

(i) complete a study of the tributary floodflows downstream of Davis Dam;

(ii) define the specific boundaries of the Colorado River Floodway so that the Floodway can accommodate either a one-in-one hundred year river flow consisting of controlled releases and tributary inflow, or a flow of forty thousand cubic feet per second (cfs), whichever is greater, from below Davis Dam to the Southerly International Boundary between the United States of America and the Republic of Mexico.

(2) As soon as practicable after the determination of the Floodway boundary pursuant to this subsection, the Secretary shall prepare and file with the Committees' maps depicting the Colorado River Floodway, and each such map shall be considered a standard map to be adhered to by all agencies and shall have the same force and effect as if included in this Act, except that correction of clerical and typographical errors in each such map may be made. Each such map shall be on file and available for public inspection in the Office of the Commissioner of the Bureau of Reclamation, Department

of the Interior. and in other appropriate offices of the Department.

(3) The Secretary shall provide copies of the Colorado River Floodway maps to (A) the chief executive officer of each State, county, municipality, water district, Indian tribe, or equivalent jurisdiction in which the Floodway is located, (B) each appropriate Federal agency, including agencies which regulate Federal financial institutions, and (C) each federally insured financial institution which serves the geographic area as one of its primary markets.

(c)(1) The Secretary shall conduct, at least once every five years, a review of the Colorado River Floodway and make, after notice to and in consultation with the appropriate officers referred to in paragraph (3) of subsection (b), and others, such minor and technical modifications to the boundaries of the Floodway as are necessary solely to reflect changes that have occurred in the size or location of any portion of the floodplain as a result of natural forces, and as necessary pursuant to subsection (c) of section (7) of this Act.

(2) If, in the case of any minor and technical modification to the boundaries of the Floodway made under the authority of this subsection, an appropriate chief executive officer of a State, county, municipality, water district, Indian tribe, or equivalent jurisdiction, to which notice was given in accordance with this subsection files comments disagreeing

with all or part of the modification and the Secretary makes a modification which is in conflict with such comments, the Secretary shall submit to the chief executive officer a written justification for his failure to make modifications consistent with such comments or proposals.

LIMITATIONS ON FEDERAL EXPENDITURES AFFECTING THE FLOODWAY

Sec. 6. (a) Except as provided in section 7, no new expenditures or new financial assistance may be made available under authority of any Federal law for any purpose within the Floodway established under section 5 of this Act.

(b) An expenditure or financial assistance made available under authority of Federal law shall, for purposes of this Act, be a new expenditure or new financial assistance if—

(1) in any case with respect to which specific appropriations are required, no money for construction or purchase purposes was appropriated before the date of the enactment of this Act; or

(2) no legally binding commitment for the expenditure or financial assistance was made before such date of enactment.

EXCEPTIONS

Sec. 7. Notwithstanding section 6, the appropriate Federal officer, after consultation with the Secretary, may make Federal expenditures or financial assistance available within the Colorado River Floodway for—

(a) any dam, channel or levee construction, operation or maintenance for the purpose of flood control, water conservation, power or water quality;

(b) other remedial or corrective actions, including but not limited to drainage facilities essential to assist in controlling adjacent high ground water conditions caused by flood flows;

(c) the maintenance, replacement, reconstruction, repair, and expansion, of federally assisted and publicly owned or publicly operated roads, structures (including bridges), or facilities; *Provided*, That, no such expansion shall be permitted unless—

(1) the expansion is designed and built in accordance with the procedures and standards established in section 650.101 of title 23, Code of Federal Regulations, and the following as they may be amended from time to time; and

(2) the boundaries of the Floodway are adjusted to account for changes in flows caused, directly or indirectly, by the expansion;

(d) military activities essential to national security;

(e) any of the following actions or projects, but only if the Secretary finds that the making available of expenditures or assistance therefor is consistent with the purposes of this Act:

(1) Projects for the study, management, protection and enhancement of fish and wildlife resources and habitats, including, but not limited to, acquisition of fish and wildlife habitats and related lands, stabilization projects for fish and wildlife habitats, and recreational projects.

(2) The establishment, operation, and maintenance of air and water navigation aids and devices, and for access thereto.

(3) Projects under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 4601-4 through 11).

(4) Scientific research, including but not limited to aeronautical, atmospheric, space, geologic, marine, fish and wildlife and other research, development, and applications.

(5) Assistance for emergency actions essential to the saving of lives and the protection of property and the public health and safety, if such actions are performed pursunat to sections 305 and 306 of the Disaster Relief Act of 1974 (42 U.S.C. 5145 and 5146) and are limited to actions that are necessary to alleviate the emergency. Disaster assistance under other provisions of the Disaster Relief Act of 1974 (Public Law 93-288, as amended) may also be provided with re-

spect to persons residing within the Floodway, or structures or public infrastructure in existence or substantially under construction therein, on the date ninety days after the date of enactment of this Act; *Provided*, That, such persons, or with respect to public infrastructure the State or local political entity which owns or controls such infrastructure, had purchased flood insurance for structures or infrastructure under the National Flood Insurance Program, if eligible, and had taken prudent and reasonable steps, as determined by the Secretary, to minimize damage from future floods or operations of the Floodway established in the Act.

(6) Other assistance for public health purposes, such as mosquito abatement programs.

(7) Nonstructural projects for riverbank stabilization that are designed to enhance or restore natural stabilization systems.

(8) Publicly financed, owned and operated compatible recreational developments such as regional parks, golf courses, docks, and boat landing ramps.

(9) Compatible agricultural uses that do not involve permanent crops and include only a minimal amount of permanent facilities in the Floodway.

CERTIFICATION OF COMPLIANCE

SEC. 8. The Secretary of the Interior shall, on behalf of each Federal agency concerned, make written certification that each agency has complied with the provisions of this Act during each fiscal year beginning after September 30, 1985. Such certification shall be submitted on an annual basis to the U.S. House of Representatives and the U.S. Senate on or before January 15 of each fiscal year.

PRIORITY OF LAWS

SEC. 9. Nothing contained in this Act shall be construed to alter, amend, repeal, modify, interpret, or be in conflict with the provisions of the Colorado River Compact (45 Stat. 1057), the Upper Colorado River Basin Compact (63 Stat. 31), the Water Treaty of 1944 with the United Mexican States (Treaty Series 944, 59 Stat. 1219), the Flood Control Act of 1944 (58 Stat. 887), the decree entered by the Supreme Court of the United States in Arizona v. California, and others (376. U.S. 340), the Boulder Canyon Project Act (45 Stat. 1057), the Boulder Canyon Project Adjustment Act (54 Stat. 774; 43 U.S.C. 618a), the Colorado River Storage Project Act (70 Stat. 105; 43 U.S.C. 620), the Colorado River Basin Project Act (82 Stat. 885; 43 U.S.C. 1501). Furthermore, nothing contained in this Act shall be construed as indicating an intent on the part of the Congress to change the existing relationship of other Federal laws to the law of a State, or a political subdivision of a State, or to relieve any person of any obligation imposed by any law of any State, or political subdivision of a State. No provision of this Act shall be construed to invalidate any provision of State or local law unless there is a direct conflict between such provision and the law of the State, or political subdivsion of the State, so that the two cannot be reconciled or consistently stand together. Inconsistencies shall be reviewed by the task force, and the task force shall make recommendations concerning such local laws. This Act shall in no way be interpreted to interfere with a State's or tribe's right to protect, rehabilitate, preserve, and restore lands within its established boundary.

SEPARABILITY

SEC. 10. If any provision of this Act or the application thereof to any person or circumstances is held invalid, the remainder of the Act and the application of such provision to other persons not similarily situated or to other circumstances shall not be affected thereby.

REPORTS TO CONGRESS

SEC. 11. Within one year after the date of the enactment of this Act, the Secretary shall prepare and submit to the Committees a report regarding the Colorado River Floodway, the task force's report, and the Secretary's recommendations with respect to the objectives outlined in section 4(b) of this Act.

AMENDMENTS REGARDING FLOOD INSURANCE

SEC. 12. (a) The National Flood Insurance Act of 1968 (42 U.S.C. 4028) is amended by adding the following section:

"Sec. 1322. (a) Owners of existing National Flood Insurance Act policies with respect to structures located within the Floodway established under section 5 of the Colorado River Floodway Protection Act shall have the right to renew and transfer such policies. Owners of existing structures located within said Floodway on the date of enactment of the Colorado River Floodway Protection Act who have not acquired National Flood Insurance Act policies shall have the right to acquire policies with respect to such structures for six months after the Secretary of the Interior files the Floodway maps required by section 5(b)(2) of the Colorado River Floodway Protection Act and to renew and transfer such policies.

"(b) No new flood insurance coverage may be provided under this title on or after a date six months after the enactment of the Colorado River Floodway Protection Act for any new construction or substantial improvements of structures located within the Colorado River Floodway established by section 5 of the Colorado River Floodway Protection Act. New construction includes all structures that are not insurable prior to that date.

"(c) The Secretary of the Interior may by rule after notice and comment pursuant to 5 U.S.C. 553 establish temporary Floodway boundaries to be in effect until the maps required by Section 5(b)(2) of the Colorado River Floodway Protection Act are filed, for the purpose of enforcing subsections (b) and (c) of this section.

"(d) A federally supervised, approved, regulated or insured financial institution may make loans secured by structures which are not eligible for flood insurance by reason of this section; *Provided*, That prior to making such a loan, such institution determines that the loans or structures securing the loan are within the Floodway."

FEDERAL LEASES

SEC. 13. (a) No lease of lands owned in whole or in part by the United States and within the Colorado River Floodway shall be granted after the date of enactment of this Act unless the Secretary determines that such lease would be consistent with the operation and maintenance of the Colorado River Floodway.

(b) No existing lease of lands owned in whole or in part by the United States and within the Colorado River Floodway shall be extended beyond the date of enactment of this Act or the stated expiration date of its current term, whichever is later, unless the lessee agrees to take reasonable and prudent steps determined to be necessary by the Secretary to minimize the inconsistency of operation under such lease with the operation and maintenance of the Colorado River Floodway.

(c) No lease of lands owned in whole or part by the United States between Hoover Dam and Davis Dam below elevation 655.0 feet on Lake Mohave shall be granted unless the Secretary determines that such lease would be consistent with the operation of Lake Mohave.

NOTICES AND EXISTING LAWS

SEC. 14. (A)(1) Nothing in this Act shall alter or affect in any way the provisions of section 702c of title 33, United States Code.

(2) The Secretary shall provide notice of the provisions of section 702c of title 33, United States Code, and this Act to all existing and prospective lessees of lands leased by the United States and within the Colorado River Floodway.

(b) Except as otherwise specifically provided in this Act, all provisions of the National Flood Insurance Act of 1968, as amended, and requirements of the National Flood Insurance Program ("NFIP") shall continue in full force and effect within areas wholly or partially within the Colorado River Floodway. Any maps or other information required to be prepared by this Act shall be used to the maximum extent practicable to support implementation of the NFIP.

(c) The Secretary shall publish notice on three successive occasions in newspapers of general circulation in affected communities of the provisions of section 12(a), (a) of this Act.

AUTHORIZATION OF APPROPRIATIONS

SEC. 15. There is authorized to be appropriated to the Department of the Interior $600,000, through the end of fiscal year 1990, in addition to any other funds now available to the Department to discharge its duties to implement sections 4 through 14 of this Act; *Provided, however*, That the provisions of section 6 and 7 of this Act shall not be affected by this section.

○